



**ENTREPRENEURIALISM IN HIGHER EDUCATION IN ETHIOPIA:  
A COMPARATIVE STUDY OF ADDIS ABABA AND BAHIR DAR UNIVERSITIES**

**BY  
ASNAKE TAREKEGN NIGUSSIE**

**A DISSERTATION SUBMITTED FOR THE DEGREE OF DOCTOR OF  
PHILOSOPHY IN INTERNATIONAL AND COMPARATIVE EDUCATION**

**JUNE, 2016  
ADDIS ABABA**

**ADDIS ABABA UNIVERSITY**  
**COLLEGE OF EDUCATION AND BEHAVIORAL STUDIES**  
**CENTER FOR COMPARATIVE EDUCATION AND POLICY STUDIES**  
**PhD PROGRAM IN INTERNATIONAL AND COMPARATIVE EDUCATION**

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**JUNE, 2016**  
**ADDIS ABABA**

## **Declaration**

The researcher hereby declare, that this dissertation, entitled: “Entrepreneurialism in Higher Education in Ethiopia: A Comparative Study of Addis Ababa and Bahir Dar Universities” is my original work and has not been presented for a degree in any other university, and that all sources of material used for the dissertation have been dully acknowledged.

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## **Abstract**

*The purpose of this study was to explore the entrepreneurial proximity of Higher Education Institutions in Ethiopia. Accordingly, two public universities namely, Addis Ababa University (AAU) and Bahir Dar University (BDU) were included in the study, considering the former as the only oldest, largest flagship university in the country, and the later for its largeness and oldness (as seen from the founding institute and college perspectives). As entrepreneurial activities in universities are primarily expected to start flourishing in the business schools, science and engineering related fields, the sources of data were determined to be leadership members at the university level, and documents, there in, the colleges/institutes specifically related to business and engineering. Thus, the sample population was drawn among the office holders of the case universities i.e. from: (a) the university level, (b) Colleges of business and Economics, and (c) Institutes of Technologies using a convenient, purposive and random sampling techniques. A total of 92 samples (46 from each university) were drawn to take part in the study. Instruments such as questionnaires, interviews, documents and observation schedules were employed to gather data. In all variables, quantitative comparisons were made on the basis of the questionnaire data, and textual comparisons on the basis of the qualitative ones. Data from the latter source reveal that the exerted efforts by both institutions towards testing their boundaries prove that they are valuing entrepreneurial orientation than the conservative positions and stabilities. However, the assessment of performance proximities of case study universities towards entrepreneurialism, as seen from the traditional-entrepreneurial spectrum (Soft-Hard category) put their respective locations to lie with high density near the traditional spectrum but follow to the entrepreneurial paradigm with a corresponding decrease in concentration, and with minor favor to AAU. Especially, the possible explanations for the observed variations on performances are to be originated from the largeness of AAU, long standing reputations and age. However, the quantitative analyses, rather, provided the clear picture of comparisons. Accordingly, independent samples t-test which was administered to find out the multidimensional result of each construct; and the MANOVA test for the uni-dimensional results did not indicate for the presence of statistically significant differences on entrepreneurial orientation variable among universities. Similarly, entrepreneurial performances do not vary between both case study universities. All these suggest that both universities are at about equal footing in relation to entrepreneurial performances. The results of the regression analysis made to identify the predicting effects of entrepreneurial orientation, organizational environment, and entrepreneurial environment on performance reveal that 'organizational entrepreneurial environment' was the statistically strong predictor of performance in AAU, while the roles of Entrepreneurial Orientation and External entrepreneurial environment are found to be statistically significant predictors of performance in BDU. Similarly, the predicting effects of organizational environment, external environment and entrepreneurial performance on the entrepreneurial orientation reveal that the variable of 'Organizational Environment' tends to have a statistically significant contribution to 'Entrepreneurial Orientation' in both universities. Further, the entrepreneurial ecosystem in case study universities reveals the relative supportiveness of the internal environments for entrepreneurship. In addition, the external environment of AAU and BDU are found to be not as hard as to be a threat; or as comfortable as to be relaxed from taking up of entrepreneurial measures rather complex which call for entrepreneurial coping mechanisms. Nevertheless, signs of strong entrepreneurial coping mechanisms tend to be absenting; and improvement of internal capabilities toward entrepreneurialism seem to be missing at both universities. From the findings recommendations are forwarded for policy-makers across the board, be they governmental policy-makers; university leaders, practitioners and beneficiaries; the industry, and the civil society at large which calls for further scanning of the internal and external entrepreneurial eco-system, not only to appreciate the potential dynamism, hostility and heterogeneity but also to put in place systems like strengthening the breadth and depth of the knowledge transfer approaches; to be engaged beyond the softer entrepreneurial performances rather to the consideration of harder entrepreneurial performances with full energy, including designing diversified measures to the generation of new revenues that align with the institutional mission and culture.*

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## **Table of Contents**

Abstract.....	i
ACKNOWLEDGEMENT.....	ii
Table of Contents .....	iv
List of Tables.....	viii
List of Figures .....	xi
Abbreviation and Acronyms.....	xii
<b>CHAPTER I: INTRODUCTION .....</b>	<b>1</b>
1.0 Overview .....	1
1.1 Background of the Study.....	1
1.2 Statement of the Problem .....	9
1.3 Objectives of the Study .....	15
1.3.1 General objective .....	15
1.3.2 The Specific Objectives .....	15
1.3.3 Basic Research Questions .....	16
1.4 Significance of the Study.....	16
1.5 Delimitation of the Study .....	18
1.6 Limitations of the Study .....	19
1.7 Definitions of Terms.....	19
1.8 Organization of the Study.....	21
<b>CHAPTER II: COUNTRY PROFILE AND THE NATIONAL CONTEXT OF ENTREPRENEURSHIP IN HIGHER EDUCATION .....</b>	<b>23</b>
2.0 Overview .....	23
2.1 The Federal Democratic Republic of Ethiopia: Location, Governance, Demographic and Socio- Linguistic Issues .....	23
2.2. Economy.....	24
2.3. Education System.....	25
2.4 Entrepreneurial Ecosystem.....	27
<b>CHAPTER III: THEORETICAL ISSUES AND FRAMEWORK FOR THE STUDY .....</b>	<b>32</b>
3.0 Overview .....	32
3.1. Theoretical Lenses on Entrepreneurship Research.....	32
3.2 The Economic Approaches to Entrepreneurship Research .....	33
The Theory of Market Orientation (MO).....	33

Knowledge Spillover Theory of Entrepreneurship .....	37
Resource-Based View .....	40
Resource-Dependency Theory .....	42
3.3 The Socio-Psychological Approach to Entrepreneurship Research .....	44
3.4 The Strategic Management Approach to Entrepreneurship Research .....	45
3.5 Models of University Entrepreneurship .....	47
CHAPTER IV: EMPIRICAL REVIEW AND CONCEPTUAL MODEL OF THE STUDY .....	50
4.0 Overview .....	50
4.1 Entrepreneurialism in Universities – Definitional and Conceptual Issues .....	51
4.2 Reasons for University Entrepreneurialism.....	57
4.3. Some Key Components of University Entrepreneurialism .....	61
Entrepreneurial Orientation (EO) .....	61
Autonomy .....	63
Innovativeness .....	66
Risk Taking .....	68
Proactiveness .....	69
Competitiveness Aggressiveness.....	70
4.4 Institutional Performances and Proximities to Entrepreneurial University .....	71
4.5 Entrepreneurial Performance of Universities .....	72
Knowledge Transfer and Exchange .....	73
Internationalization .....	75
Entrepreneurship Education.....	80
University as a Pathway to Entrepreneurs .....	87
4.6 Proximities of Performances to Entrepreneurial University.....	88
4.7 Performances of Universities in Resource Mobilization and Diversification .....	92
Public Funding (Tax-Payer Funding) .....	94
Application of a User-Pay Principle .....	95
Generation of Resources from the Third Sector .....	96
4.8 Factors related to University Entrepreneurialism .....	98
4.8.1 Organizational /Internal Entrepreneurial Environment .....	99
Control Systems .....	101
Organizational Structure of Universities.....	102
Human Resource Management System.....	104

Entrepreneurial Culture in a University .....	106
Entrepreneurial Leadership Behavior.....	108
4.8.2 Environmental Entrepreneurial Factors.....	110
Environmental Munificence .....	111
Dynamism .....	112
Environmental Hostility .....	113
Environmental Heterogeneity.....	114
CHAPTER V: RESEARCH METHODOLOGY .....	117
5.0 Introduction .....	117
5.1 Research Paradigm .....	117
Ontological and Epistemological Positioning .....	118
Methodological Choice .....	119
5.2 Research Design .....	120
5.3 Empirical Setting .....	121
5.4 Target Population of the Study.....	123
5.5 Sample Population and Sampling Strategies.....	124
5.6 Operationalization of Variables.....	125
5.7 Data Collection Instruments .....	127
5.8 Instrument Validation and Measurement .....	129
Validity.....	129
Reliability.....	130
5.9 Data Collection Procedures .....	130
5.10 Data Analysis and Presentation.....	131
5.11. Data Entry, Screening, and Examination.....	133
5.12 Ethical Considerations.....	136
CHAPTER VI: RESEARCH FINDINGS OF THE STUDY-ANALYSIS, PRESENTATION, AND INTERPRETATION .....	137
6.0 Introduction .....	137
6.1 Research Findings of the Study.....	137
6.1.1 Entrepreneurial Orientation .....	137
6.1.2 Entrepreneurial Performances.....	159
6.1.3 The Proximity of Performances to Entrepreneurialism .....	179
6.1.4. Performances in Resource Mobilization and Diversification .....	1903

6.1.5. Organizational Business Environment.....	202
6.1.6 External Business Environment .....	220
6.2 The Interactions among the Variables of EO, OE, EE, and EP .....	226
CHAPTER VII: SUMMARY, CONCLUSION AND RECOMMENDATIONS OF THE STUDY ....	239
7.0 Introduction .....	239
7.1. The Research Agenda.....	239
7.2 Summary of Findings .....	242
7.3 Conclusion.....	253
7.4 Recommendations of the Study.....	256
REFERENCES .....	261
APPENDIX .....	295

## List of Tables

Table 4.1: Traditional and Entrepreneurial Organizations and their Management Philosophies .....	56
Table 5.1: The Distribution of Target and Sample Population and Sampling Strategies.....	127
Table 5.2: Variables, Instruments, and Sources of Instrumentation.....	128
Table 6.1: Autonomy in AAU and BDU.....	141
Table 6.2: Innovativeness in AAU and BDU.....	144
Table 6.3: Proactiveness in AAU and BDU.....	150
Table 6.4: Competitive Aggressiveness in AAU and BDU.....	154
Table 6.5: Risk Taking in AAU and BDU.....	158
Table 6.6: Tests of Equality of Covariance Matrices and Equality of Error Variances on Entrepreneurial Orientation Variable.....	160
Table 6.7: MANOVA Tests on Entrepreneurial Orientation.....	161
Table 6.8: Performances in Knowledge Transfer/Exchange in AAU and BDU.....	163
Table 6.9: Types of Knowledge Transfer Approaches Practiced in AAU and BDU.....	165
Table 6.10: Performances in Internationalization in AAU and BDU.....	167
Table 6.11: Performances in Entrepreneurship Education in AAU and BDU.....	171
Table 6.12: Models/ Principles Practiced for Entrepreneurship Education in AAU and BDU.....	173
Table 6.13: Dimensions of Entrepreneurship Education in AAU and BDU.....	174
Table 6.14: Entrepreneurial Performances in Pathways for Entrepreneurs in AAU and BDU.....	177
Table 6.15: Tests of Equality of Covariance Matrices and Equality of Error Variances on Entrepreneurial Performances.....	180
Table 6.16: MANOVA Tests on Entrepreneurial Performances.....	180
Table 6.17: Tests of Between Subjects Effects on Entrepreneurial Performances.....	181
Table 6.18: The Proximity of Performances to either Soft or Hard Entrepreneurial Activities.....	183
Table 6.19: Instructional Initiatives in AAU and BDU.....	195
Table 6.20: Pricing Initiatives in AAU and BDU.....	197

Table 6.21: Development Office Initiatives in AAU and BDU.....	198
Table 6.22: Research and Technology Transfer Initiatives in AAU and BDU.....	199
Table 6.23: Franchising, Licensing, Sponsorship, and Partnering Arrangements with Third Parties .....	200
Table 6.24: Initiatives in Auxiliary Enterprises, Facilities, and Real Estate.....	201
Table 6.25: Human Resource Initiatives.....	202
Table 6.26: Other Financing Initiatives.....	203
Table 6.27: Volume of Generated Income from Different Dimensions.....	204
Table 6.28: Control Systems in AAU and BDU.....	206
Table 6.29: Organizational Structure in AAU and BDU.....	209
Table 6.30: Human Resource Management Systems in AAU and BDU.....	212
Table 6.31: Entrepreneurial Culture in AAU and BDU.....	215
Table 6.32: Entrepreneurial Leadership Behavior.....	217
Table 6.33: Tests of Equality of Covariance Matrices and Equality of Error Variances on Organizational Entrepreneurial Environment Variable.....	220
Table 6.34: MANOVA Tests on Organizational Entrepreneurial Environment.....	221
Table 6.35: Tests of Between Subjects Effects on Organizational Environment.....	222
Table 6.36: Environmental Dynamism in AAU and BDU.....	223
Table 6.37 Environmental Hostility in AAU and BDU.....	225
Table 6.38: Environmental Heterogeneity.....	237
Table 6.39: Tests of Equality of Covariance Matrices and Equality of Error Variances on External Environment Variable.....	228
Table 6.40: MANOVA Tests on External Entrepreneurial Environment.....	229
Table 6.41: Correlations across Variables and Constructs.....	230
Table 6.42: Model Summary Output from the Standard Regression Analysis of 'Entrepreneurial Performances'.....	231
Table 5.43: ANOVA Output from the Standard Regression Analysis of 'Overall Entrepreneurial Performances'.....	232
Table 6.44: Coefficients' Output from the Standard Regression Analysis of 'Entrepreneurial Performances' .....	233

Table 6.45: The Model Summary Output from the Standard Regression  
Analysis of Entrepreneurial Orientation.....235

Table 6.46: ANOVA Output from the Standard Regression Analysis of  
Entrepreneurial Orientation.....237

Table 6.47: The Coefficients' Output from the Standard Regression Analysis of  
' Entrepreneurial Orientation' .....238

## List of Figures

Figure 4.1: Key Elements in Transition from Traditional to Entrepreneurial University.....	55
Figure 4.2: Spectrums of Traditional-Entrepreneurial University.....	94
Figure 4.3: Conceptual Model for the Study.....	118
Figure 6.1: The Percentage of Scientists and Engineers Relative to the Total Number of Faculties in AAU and BDU, 2015.....	148
Figure 6.1: Budget Share for Research and Development, and Community Services in AAU and BDU, 2015.....	149
Figure 6.2: The Vertical Extension of AAU Students.....	153

## **Abbreviation and Acronyms**

AAU: Addis Ababa University

AfDB: African Development Bank

AUCC: Association of Universities and Colleges of Canada

BDU: Bahir Dar University

CIA: Central Intelligence Agency

CRM: Customer Relationship Management

EO: Entrepreneurial Orientation

ESDP: Education Sector Development Program

FDRE: The Federal Democratic Republic of Ethiopia

HEI: Higher Education Institutions

IP: Intellectual Property

IT: Information Technology

LEED: Local Economic and Employment Development

MOE: Ministry of Education

MoU: Memorandum of Understanding

NCEE: National Centre for Entrepreneurship in Education

NESTA: National Endowment for Science, Technology and the Arts.

NGO: Non-Governmental Organizations

OECD: Organization for Economic Cooperation and Development

PECD: Organization for Economic Co-Operation and Development

QCA: Qualitative Comparative Analysis

RBV: Resource-Based View

SCA: Sustained Competitive Advantage

SE: Strategic Entrepreneurship

SME: Small and Medium Enterprises

TEI: Tertiary Education Institution

TTO: Technology Transfer Offices

UNDP: United Nations Development Programmed

UNECA: United Nations Economic Commission for Africa

## **CHAPTER I: INTRODUCTION**

### **1.0 Overview**

This chapter presents the background of the study. It begins with an overview of the issues surrounding entrepreneurial university and the benefits entrepreneurialism have in the socioeconomic development of a country in general, and the universities, in particular. The description is followed by stating the identified gap in studying universities in Ethiopia and the central research questions which the dissertation seeks to address. Besides, the objectives of the study, its significances, delimitation, limitations, and the definitions of important terms used, are explained. This introductory chapter is concluded with an outline of the organization of the present study.

### **1.1 Background of the Study**

In a world where change is the only constant; the role of education, and especially higher education, is becoming increasingly important. However, the question arises whether universities will be capable to carry out the needed reforms in order to occupy an important place in the economic and political development of a country. Each of the teaching and research activities of the university should make its contribution to the development of society, taking into account responsibility or a culture of accountability towards community and society in which it operates. In order to fulfill such tasks, universities need to redefine their vision, mission, and activities and replace their traditional approach with a new, contemporary approach, which has been coined as "entrepreneurial approach" (Peterka, 2011:547). Indeed, in environments ruled by rapid changes and increased risks, being entrepreneurial has become fundamental for the survival and the growth of all firms; irrespective of size, age or sector. In particular, the current changes and development of universities, according to Deem (2001) are explicitly or implicitly attributed to four main concepts. The first of these is globalization (i.e., the global spread of business and services as well as key economic, social and cultural practices to a world market, often through multi-national companies and the internet). The second is that of internationalization (i.e., the sharing of ideas, knowledge and ways of doing things in similar ways across different countries). The third concept is the ideology of new managerialism, which is related to the extent to which contemporary business practices and private sector ideas or values have permeated publicly funded institutions

and work practices. The fourth and final concept is that of entrepreneurialism in higher education, where academics and administrators explicitly seek out new ways of raising private sector funds through enterprising activities such as consultancies and applied research. This fourth concept is one of the major concerns of the present research study.

Consequently, universities today are caught up in a complex relationship with globalization, which serves as a catalyst for both internationalization and entrepreneurship. On the one hand, universities are *objects* of the growing interdependence and convergence that is at the heart of globalization. On the other, they become *agents* of globalization by developing policies designed to enable strategic internationalization, notably through the integration of “*an international, intercultural or global dimension into the purpose, functions or delivery*” of education and research (Knight, 2003). By the same token, the entrepreneurial paradigms provide universities with a roadmap for coping with increasing uncertainty and complexity, encouraging them to embrace change and innovation, take risks and assume responsibility for designing and implementing development strategies essential for success in the ever changing competitive global environment (OECD, 2009). Therefore, the roles of universities in economic growth have evolved in time and grew beyond their traditional teaching and research tasks. They are anymore expected to introduce solutions to social and industrial needs by exploiting the knowledge that is created by research rather strategically aim to create wealth by investing in business, by building linkages, partnerships with technological enterprises or by creating new firms through academic entrepreneurship (Yildirim & Askun, 2012).

Universities are almost forced to become “entrepreneurial,” if they are to survive and certainly if they are to prosper (Samuel & Hines, 2006:14). Further, Barber, Donnelly & Rizvi (2013) argued that currently; and more than ever in their history, HEIs are being judged by the ways in which they respond to the social and economic needs of society, namely, how they are facilitating social mobility and wider access to higher education, their actions to enhance graduate employability, their short- and long-term contributions to national economic growth and local development, and the ways in which they are stimulating the birth of new enterprises and innovation in existing firms. While conceptualizing the issue, it can be observed that governments are pushing universities, according to the explanation of Gibb, Haskins and Robertson (2013), to embrace the paradigm of the entrepreneurial university given the various external pressures which include

“massification” of higher education, employability issues, challenges of globalization, and internationalization strategies of universities. Keeping pace with this approach of the government, some of the university managements are shifting away from a long-established organic approach towards a more interventionist top- down push approach.

As argued by Etzkowitz, Webster, Gebhart and Terra (2000), universities around the world are increasingly shifting from their traditional primary role as educational providers and scientific knowledge creators to a more complex “entrepreneurial” university model that incorporates the additional role of the commercialization of knowledge and active contribution to the development of private enterprises in the local and regional economy. This is because, entrepreneurial answer is believed to offer a formula for institutional development of university in which university defines and determines its autonomy, ensures diversified financing (and thus decreases its dependence on the state), develops new university departments and activities in accordance with society's demand, and leads to structural changes, which are securing better university's capacity in responding to changes (Peterka, 2011).

A belief that ‘entrepreneurship’ is a crucial driver of economic growth for both developed and developing nations has emerged among both scholars and policy makers (Audretsch, Keilbach & Lehmann, 2006). As a result, universities are assuming new responsibilities across the globe, as drivers of economic development. They are increasingly involved in teaching strategic and functional skills for entrepreneurship and in providing complementary coaching, mentoring, incubation and finance. Many have established entrepreneurship courses and entrepreneurship centers that stimulate entrepreneurial intentions among students and help increase the success rate of those ready to start a business. There is rapid development and change in this field internationally, with rapidly evolving structures and pedagogies, and there is much to be learned at this time (OECD, 2012). Likewise, universities that host some of the brightest minds have much to offer to their countries economic development; seek to protect and increase their proactiveness and to generate innovations. As well, universities need to create new business models that are dynamic, modern and fit for the decades ahead, in other words, to become entrepreneurial. By doing so, individual universities will derive benefits through becoming a source of differentiation and distinctiveness in an increasingly competitive market place, creating positive branding and image (Gibb, 2014).

As to how universities can act entrepreneurially, Kweik (2012) has indicated two key dimensions: (i) as an organization taking an entrepreneurial response to addressing the pressures and challenges it faces, renews itself to better align with its environment, inculcates entrepreneurial thinking through its governance structures and managerial policies and practices; and (ii) as an institution creating an environment, within which the development of entrepreneurial mindsets and behaviors are embedded, encouraged, supported, incentivized and rewarded.

Nevertheless, researchers continue discussing the applicability of entrepreneurialism in a university setting. For instance, there are scholars who are to some extent reserved towards entrepreneurialism at universities; and feel that entrepreneurial transformation might endanger the delicate balance between the core activities and lead to the downfall of public confidence in these institutions (Slaughter, 2004). This shift by the university towards the third mission is alleged by few academic disciplines as a menace to the main purpose of a university which is, teaching and research (Philpott, et al., 2011). Such scholars assert entrepreneurial university as a twist of the purpose of the research university. Some scientists are also opposed to the creation of entrepreneurial paradigm, which they see as a threat to the traditional integrity of the university, and excessive emphasis on profit leads to the loss of university's role as an independent critic of the society (Etzkowitz, et al., 2000). These critics of the entrepreneurial modality of university believe that production of students and publishing of research should remain university's fundamental roles.

Even so, some insist that only a research university can go into entrepreneurial mode and ideally qualified to become a fully-fledged entrepreneurial university. They have defined an entrepreneurial university as a university that strongly influences the regional development of industries as well as economic growth through high tech entrepreneurship based upon strong research, technology transfer and entrepreneurship capability (Etzkowitz & Zhou, 2008). However, empirical case studies in China for example show a nonlinear pathway from teaching to commercial activities to the development of research suggesting that universities in developing countries and regions do not have to wait to achieve research university status before contributing to regional development. Therefore, it is argued that any university can be an entrepreneur, no matter whether it is a professional college, a teaching university or a research university. Building an entrepreneurial university is therefore a process in itself (Etzkowitz & Zhou, 2008).

One might anticipate that private universities, funded entirely independently of the state, might be in the forefront of entrepreneurial activity, but this is not always the case. According to Shattock (2009), they are themselves dependent on a single source of income – student fees. This seems to have the effect of concentrating their energies on maximizing this single stream to the exclusion of others, and they are generally not entrepreneurial. By contrast, many universities, substantially core funded by the state, have diversified their activities into externally funded research and technology transfer, regional outreach, and into internationalization ventures of astonishing breadth and ambition.

Despite the criticisms, creation of entrepreneurial university is evident, although its development, organization and management pose many questions. In this regard, Blenker, Dreisler and Kjeldsen (2006) argued that the transition towards entrepreneurial university does not mean that university becomes less oriented towards research, rather, that research and educational activities are seen as capital, and university expects to generate profit from its activities, primarily through projects with the business community. Giving emphasis to the importance of university entrepreneurialism, Flores (2010:4.3) further elaborated that

Understandably, faculty members hate the idea of a “business model,” “students as customers,” discussions of market forces, or the notion of “demand-based degrees.” But the truth is that every university is subject to market forces, such as fluctuations in enrollment, changing interests in majors, and funding ... We have to learn to respond to market forces. Faculty members worry about furloughs, program closures, and exigency policies. They have a vested interest in seeing that their university is efficient and well-financed, and they must play an active role in the cuts.

Further, those who argue in favor of entrepreneurship usually tend to stress the potential of higher education institutions to make significant contributions to wealth creation. Policymakers alike increasingly encourage entrepreneurial transformation of universities by introducing criteria for funding, which rewards entrepreneurial initiatives of universities. Likewise, Clark, (2004) observed that universities have to respond to proliferating new demands of government, industry

and societal groups, while maintaining and improving their traditional fields of research, teaching and student learning that became more complicated with every passing year. Universities need to develop flexible capabilities that permit them to weave together new and old, change and continuity, in sustainable forms; nonetheless, many universities seem unable to keep pace fast-moving times. Limited in resources and mired in encrusted practices some would say – they would not freely step into the rapidly flowing streams of societal change. Instead, deliberately or unconsciously, universities would opt for the comfort of standing still whereby knowingly, standing still means falling behind in any fast changing and competitive system.

Regardless of the relevant educational and research which point at the benefits of successful transformation of universities to entrepreneurialism, the entrepreneurial character of universities does not mean that they will become dependent on the industry, nor turned themselves into "*all-purpose shopping malls*" (Clark, 2001:10). Entrepreneurial universities remain to be active actors of the society, affecting their environment (industry), just as the environment affects them. These types of institutions are capable of change, without compromising their mission towards complex and uncertain environments (Petrika, 2011). Such universities are supposed to develop the entrepreneurial orientation among their employees, because

...in firms of all sizes, strategic entrepreneurship is more likely to be successful when employees have an entrepreneurial orientation....Five dimensions characterize a firm's entrepreneurial orientation: autonomy, innovativeness, risk taking, proactiveness, and competitive aggressiveness (Lumpkin & Dess, 1996: 135; Hitt et al., 2005: 390).

Accordingly, Shattock (2009) stated that entrepreneurialism should not simply be seen necessarily in relation to research, or in the exploitation of research findings. Rather, entrepreneurialism involving innovation, academic and financial risk can be found in regional outreach programs, in economic regeneration activities, and in distance learning ventures; as well as in investment in spin-out companies, in the establishment of overseas campuses, and in the creation of holding companies to house different sets of income-generating activities. Thus, for many universities,

entrepreneurialism can be found in various innovative forms of teaching either to new clientele at home or embodied in programs for internationalization.

One of the most distinguishing characteristics of the entrepreneurial university is in fact the fundamental change it has on the role and responsibility of the individual faculty member to become an entrepreneur and for the university to support such individuals. As Duderstadt and Womack (2003: 125) in (Samuel & Hines 2006:18) observe:

In most colleges and universities the professorate expects others to generate the resources necessary to support their teaching, research, and professional activities. Although faculty entrepreneurs are essential in generating the resources needed for quality education and scholarship, in many institutions these individuals are held in low regard by the rank and file. The awards of the academy most often go to those who behave in traditional roles, depending upon others for their existence and not seeing themselves as having a responsibility to bring resources to the institution. Yet it may very well be that the most vibrant universities of the future will be institutions with faculties who are deeply engaged in the economics of education. The most productive scholars would be rewarded for that effort, and those rewards would encourage other able colleagues to follow.

Yet, universities in Ethiopia do not declare themselves as entrepreneurial, though most seems to face the challenges of the market. Of course, some universities generate resources that do not come solely from the state. They manage to knock into additional financial revenue sources such as student fees, campus services, project funds from (bilateral and multilateral) donors, and regional and local authorities. Thus, even though entrepreneurship is much more than that, there exists a range of ‘entrepreneurial related activities’ in universities in Ethiopia, although they may not be labeled as such. Moreover, though there are few studies which have touch upon the entrepreneurial issues in Ethiopia, they were not exhaustive enough to reveal the entrepreneurial engagement of the universities. For instance, Sellamna & Amare (2014) described that most Ethiopian universities are already involved in activities related to community service: continuing education, training courses for non-university audiences, technology transfer, technical expertise provided to development projects, legal aid to weakest groups, and so on. Some universities have

also established university-industry partnership offices to encourage collaboration with business, agriculture and industry. However, whether or not such roles played by the universities are in accordance to the entrepreneurial requirements are undertreated. Dugassa (2012) has indicated the availability of entrepreneurship education in Ethiopian public universities, at least to acquaint students with the basic concepts and characteristics of entrepreneurship; though the study was open to see alongside some other principles and models of entrepreneurship education. Further, Munyua, Sewale, Huka and Dawe (2011) have explored the revenue diversification strategies being instituted by eight public universities in Ethiopia. The findings showed that among the strategies employed to varying degrees included private sponsored students programs such as the extension, summer, distance programs and short term trainings though the service units found to be commercialized were limited to student and staff lounges and university farms. Even though these cases demonstrated part and parcel of entrepreneurial activities in universities, gaps of comprehensiveness were observed in each of the attempts.

In addition, Tilahun (2011) has examined whether higher education governance in Ethiopia is moving towards quasi-market. It was found out that while it has started the journey, higher education governance in Ethiopia is a far cry from quasi-market. Further, Mudde, Dugassa & Alemfrie (2015) have carried out an entrepreneurship assessment of universities in Ethiopia, and found out that entrepreneurship education and entrepreneurial activities are at their infant stage in spite of existence of entrepreneurial elements such as income generation. However, the prevalence of entrepreneurial orientation in universities, their functions, and the roles of external and internal entrepreneurial factors on entrepreneurial performance were still, the untouched aspects that are addressed in this study.

Nevertheless, it was argued by Clark (2001) that universities may perceive entrepreneurship and innovation as fads, most of which fail and are usually of a transient character which implies that as university transformation requires ongoing hard work in which demonstrable results often do not show up in a year but rather in five or ten years, each university has to find its own specific pathways, its own specific configuration of how to bring about change. Further, no one way, no one rate of change, applies to all. In the similar vein, though institutions in Ethiopia are believed

to be dipped their toes into some lines of business, whether or not they are engaging in an entrepreneurial activities or continuing to operate as only dependent teaching and research institutions is under researched. Moreover, although universities in developing countries may seem to be a long way from being an entrepreneurial university, this research assumes that in principle, they are along the path. Consequently, this study is designed to examine comparatively the entrepreneurial engagement of two universities in Ethiopia, assuming that universities are expected to be more entrepreneurial than others due to differences in endogenous and exogenous factors.

## **1.2 Statement of the Problem**

Universities elsewhere are to cope up with a number of preconditions namely: a demographic trend, to adapt to the diversified needs of students including, those other than just the ordinary full-time ones; a financial turndown, tighter budget processes and fewer government funds; a relation with industry, to breakdown the “ivory tower” in favor of relations and interaction with industry; and a severe competitive market: between universities for students, staff and research funds (Sijde, Popma & Tushune, 2012). Further, universities are to deal with different drivers of change like: the massive increase in the availability of ‘knowledge’ online and the mass expansion of access to university education in developed and developing markets; the transformation of the ways education is delivered and accessed, and the ways ‘value’ is created by higher education providers, public and private alike; the growth of global mobility for students, academics, and university brands which will not only intensify competition, but also create opportunities for much deeper global partnerships and broader access to student and academic talent (Ernst &Young, 2012). Likewise, it is believed that universities in Ethiopia are also demanded to handle such types of challenges.

In addition, universities are facing higher levels of uncertainty and complexity in their environment as well as greater entrepreneurial pressures from within. For instance, van Ginkel (2002) and Peterka (2011) argued that pressures of the public for easier access to higher education, expectations of governments on involvement and contribution of university to socio-economic development of the country, and demands for application of principles of market economy and organizational management in their own organization, have created a new context of development

of higher education. As a result, universities can no longer be regarded only as parts of the national education system, protected by the state and in charge of study and research programs. Rather, many countries have witnessed significant transformations and reforms in their higher education systems, including the emergence of new types of institutions, changes in patterns of financing and governance, the establishment of evaluation and accreditation mechanisms, curriculum reforms, and technological innovations.

However, it has been highlighted that the traditional academic viewpoint dictates universities to do sole focus of teaching, learning and research and not involve in commercial activities (Chan, et al., 2012). This traditional academic thinking has been the result of continuous government funding (Buenstorf & Geissler, 2012; Ismail & Ajagbe, 2013) because, in the public protected environment there was no pressing need for universities to change their previous academic philosophies; hence there was reluctance on their part to enter into the marketplace (Ejermo, Kander & Svensson, 2011; Browne, 2010; Kuratko, 2007) even though the outcome for a high degree of financial dependence on a single mainline source is a flawed way to develop modern universities, particularly proactive ones (Clark, 2004). Especially, as the interests of national and regional governments multiply and change, university support can readily slide down the government's list of priorities. Often higher on the scale are health, welfare, primary and secondary education, foreign affairs, defense, environment, and issues of the day which may have large constituencies or interest groups more effective than the university lobby. Thus, universities need to learn about the enduring downside of single-source dependency, which implies for the engagement of entrepreneurial activities.

In this rapidly evolving world, what is likely to happen to those higher education institutions which are not willing or able to change is to be encountered with several challenges and opportunities. For instance, real-life stories of revolution in the world of higher education on the 21st century calls to imagine: a university without buildings or classrooms or even a library; a university ten thousand miles away from its students; a university without academic departments, without required courses or major or grades; a degree valid only for five years after graduation; a college willing to reimburse its students if they do not find a suitable job within six months after

graduation; a higher education system where institutions are ranked not by the quality of their teachers, but by the intensity of electronic wiring and the degree of internet connectivity and; even a country whose main export earnings come from the sale of higher education services (Salmi, 2001). Therefore, since the case study universities are operating more or less in similar circumstances, they cannot be considered immune of such challenges. The intensity of the pressure from demanding situations is best noted by Collis et al. (2003: 88) cited in Samuel and Hines (2006:14) in that:

The emerging for-profit, online education enterprise is like a tsunami, with colleges and universities sitting on the beach sunning themselves in the warm glow of a hot economy while believing that the gentle surf before them is simply the tide coming in. Little do they realize that out over the horizon is a swelling hundred-foot tsunami wave, bearing down upon them with little chance to outrun it.

This indicates that the pressures of market forces on the university are going up increasingly. Beyond competition among colleges and universities there are new educational providers entering the marketplace with the aim of providing cost-competitive, high-quality education to selected markets. These market realities have led to the commercialization of higher education to a degree never before experienced. Besides, universities in Ethiopia are parts of these demands and expectations since the massive expansion of higher education also holds true in the country. For instance, there was a dramatic increase in the number of universities, which has grown from 2 to 34 in a period of 20 years, (of which, 31 owned by MOE; and 3 others by different public organizations). As a result of this expansion, enrolment has grown at average annual growth rates of 15.5% for higher education undergraduate, and 32.6% for higher education post graduate (MOE, 2013). Correspondingly, it is possible to envision how the Ethiopian higher education system of the past decade has shifted from an elite system, whereby a small proportion of the age cohort were privileged to access higher education, to the expansion and diversification of higher education on the grounds of providing equity and open access. However, since Ethiopian universities receive financial assistance mainly from the state as it was argued by Moges (2013), such a rapid increase in enrolment has become a challenge to the sustainable financing of higher education, especially in a situation where enrolment is growing at a faster pace than the economy. Similarly, universities in Ethiopia are also believed to be parts of these demands and expectations,

even though the orientation the institutions hold to cope up with the ‘tsunami’ was unknown yet; and this is precisely the concern to the present study.

Conversely, despite more impressive feats of universities that overcome their fear of failure before setting out on a transforming journey toward future change, there are so many reasons to stay in the traditional box, with steady-state inertia to wed the institution to the status quo, it seems likely that a large number of universities, even a majority, will not venture very far down the entrepreneurial road (Clark, 2004). This study has to explore further this aspect of higher education in Ethiopia.

According to Shattock (2009), institutional entrepreneurial activities are encouraged when: core income from government is tight but not inadequate for some new initiatives; governments promote and support third mission activities; a significant part of any income earned from new initiatives goes directly or indirectly to the groups and individuals that have the ideas, take the risks, and do the work; a commercial culture is acceptable to a significant number of the academic staff; unofficial individual private entrepreneurial or freelance ventures are regulated; and when the university is active in subject areas where continued professional development and research findings are commercially or socially valuable. Conversely, entrepreneurial activity may be discouraged if: core income from government is too generous; core income is inadequate for investment and risk taking; financial regulations are too burdensome; the traditional academic culture that became dominant in much of the twentieth century remains in place. In relation to this argument, different authors had to pronounce that:

Universities need to create favorable environment for entrepreneurship development, which will contribute in real economic and social development of the surrounding region and nation as whole (Kirby 2006). The traditional university’s activities might support social development by producing qualified human resource, but may not be fitting exactly to the need of industries and government organization. Hence university qualified students may be requiring further refinement in their skill sets to make them better usable. This gap of offered educational programmes by universities

and actually needed demand of knowledge, skills and qualities can be bridged by creating entrepreneurial universities (Pahurkar, 2015:48)

It is generally argued that the vital importance for universities to shift from their traditional model to the new “entrepreneurial” model is expected to be more urgent in universities of most developing economies than the developed ones for three reasons (Wong & Singh, 2007). Firstly, universities of developing economies are not only relatively younger but also invariably created as public institutions, owned and regulated by the government, and tasked to carry out its policies. Also, they are with state employed faculties and government appointed administrators. Secondly, as “late-comers,” economies of developing countries had traditionally placed a much stronger emphasis on absorbing and diffusing technological knowledge from the advanced countries, rather than on indigenous innovation. Meanwhile, they tend to focus strongly on their manpower development role through the assimilation of foreign technologies and knowledge, other than on new knowledge creation through indigenous research activities. Thirdly, the shift toward a knowledge-based economy requires a significant increase in the indigenous capabilities of local enterprises to create and commercialize new knowledge than using knowledge imported from advanced countries. Thus, as the conditions in the case study universities convene with the specified reasons, the urgency of their entrepreneurial engagement is indisputable.

Conversely, many of the local private enterprises are still tend to be laggards, rather than leaders, especially in Research & Development and innovation activities. Many, local industries in developing economies often have less experience, and lower capability to commercialize knowledge generated from local universities. Thus, the universities in developing economies, as to Wong, et al. (2007), have even greater urgency to take on an “entrepreneurial” role than universities in the advanced economies, in order to compensate for these less favorable pre-conditions that they start from. Accordingly, searching for the entrepreneurial progress of the case study universities in Ethiopia emanates from the respective point of view in favor of entrepreneurial urgency in developing economies.

Moreover, traditional universities used to focus on transfer of knowledge through education while the advancement of knowledge through basic research. This traditional approach is leading to

produce graduates without special inclination towards entrepreneurship. As a result, it is argued that universities should undertake entrepreneurial activities with an objective of economic and regional development along with their own financial gain. They need to be more innovative and entrepreneurial against traditional way of teaching and research, while doing so synchronization among university–industry–government is realized and such university can be said to be an “entrepreneurial university” (Leydesdorff & Meyer 2003; Pahurkar, 2015). This implies that the output of universities should not be measured only on the basis of the number of students enrolled and passed out with degrees but also that the social and economical contribution of universities must be considered for their institutional evaluation.

Some universities however, have taken on more formal organizational structures, managerial principles and strategies making them gradually resemble more like conventional firms and corporations than they used to. Examples in this regard are, according to Wedlin (2008), universities that have established firm like public relations (PR), media departments and strategies. They are also heavily engaged in strategic planning, mission-statement production and implementing marketing procedures. In so doing, they are more and more referring to, and relying on, modern management ideas. Increasingly, they are also competing with each other, not only for research funding, students, faculty and other resources, but also for reputation and status, both within and outside the academic domain, within the steadily growing number of institutional ranking lists and league tables, both national and international. Thus, there are tendencies for universities to become organized as market actors and act more strategically in relation to their environment.

It should be also noted that virtually every university has suffered through serious budget reductions and has taken steps to economize using reductions in force, outsourcing, downsizing, mission reformulation in the context of strategic planning, and a variety of measures of accountability (Samuel & Hines, 2006). In this sense, the recent surge of commercial activity is best understood as only the latest in a series of steps to acquire more resources, beginning with the use of aggressive marketing actions of any nature.

HEIs being perceived as engines of innovation, technological progress and as driving forces for economic growth; parents wanting the best opportunities for their children as they strive to find

meaningful opportunities in an uncertain future; students wanting value for money and expecting a good job and salary to pay off their education debt; believing that university education offers them a route to better (and guaranteed) employment opportunities; the competitive threats and opportunities as a result of the growth in private sector providers and to a much lesser degree, corporate providers; and knowledge is no longer being the unique domain of universities.

Still, business community anywhere, is asking for more university graduates, better prepared and skilled in more disciplines and specializations; students themselves are more demanding; the whole society has more needs and expects solutions from universities; government has increased expectations that universities will solve the growing number of society problems; and government has less money to spend for education and research in spite of growing needs of universities for funding (Scarlat, Brustureanu, Borangic & Popescu (2012). Meanwhile, it is the levels of uncertainty and complexity associated with those changes and the associated threats and opportunities that dictate the need for entrepreneurial response. Otherwise, as it was argued by Hannan (2013), that when the future is predictable and known what is likely to happen and how organizations and individuals behave and respond, there is no need to be entrepreneurial in what to do, how to do and with whom to do it. Consequently, it sounds reasonable to investigate the entrepreneurial engagement of the two Ethiopian universities in this study comparatively, namely AAU and BDU since they also share the aforementioned institutional problems which call for entrepreneurial responses.

### **1.3 Objectives of the Study**

#### **1.3.1 General objective**

The purpose of this study is to explore the institutional proximity to entrepreneurial university: with particular references to Addis Ababa University (AAU) and Bahir Dar University (BDU).

#### **1.3.2 The Specific Objectives**

More specifically this study will attempt:

1. To find out the entrepreneurial orientation scenarios in AAU and BDU.

2. To map out the entrepreneurial performances of AAU & BDU in knowledge/technology transfer, internationalization, entrepreneurship education, and pathways for entrepreneurs.
3. To determine the performance proximity to /distant from entrepreneurialism of both higher education institutions.
4. To explain the resource mobilization and diversification performances of AAU and BDU.
5. To describe the state of organizational and external environments to entrepreneurialism in AAU and BDU.
6. To make comparisons on the patterns of similarities and differences between AAU and BDU in their practices towards entrepreneurial universities.
7. To assess the predicting roles of the entrepreneurial orientation, organizational and external entrepreneurial environment variables on each constructs and the overall entrepreneurial performance variable of both universities.

### **1.3.3 Basic Research Questions**

To achieve the objectives listed above; this study tried to answer the following research questions:

- A. How are the entrepreneurial orientation scenarios in AAU and BDU?
- B. How are the entrepreneurial performance landscapes in AAU and BDU?
- C. How are the proximities of performances in AAU and BDU to/from entrepreneurialism?
- D. How are the resource mobilization and diversification performances in AAU and BDU?
- E. How do the organizational and external factors operating towards entrepreneurialism in AAU and BDU?
- F. What are the patterns of variations/similarities between AAU and BDU in their practices towards entrepreneurial universities?
- G. How predictive are the variables of entrepreneurial orientation, organizational and external environments, on each of the constructs and the overall entrepreneurial performance variable in AAU and BDU?

### **1.4 Significance of the Study**

The present study attempts to contribute for both theoretical knowledge and managerial practices on entrepreneurial university; and to add value to the existing literature about entrepreneurial

orientation, performance, and on endogenous and exogenous entrepreneurial environments within universities. Moreover, it can demonstrate to those in need of it, the entrepreneurial practices of universities along the spectrums of traditional-entrepreneurial paradigm. In particular, it can provide insights for management members at all levels of universities on how to manage and guide institutions along entrepreneurial continuum and to be robust enough to work for the development of a market/quasi-market ecosystems.

The research outcomes may help those target universities to review their institutional entrepreneurial situations and potential areas of action, and about their own degree of competence and engagements towards entrepreneurialism when compared with each other. Specifically, as a comparative study, the results are hoped to be useful to draw the experiences of one from the other institutions, as it was explained by May (1997) in Tight (2003:191) through:

- The import-mirror view: where one's own practices are examined in the context of others;
- The difference view which focuses on why the other HEI develop in different ways;
- The theory development view: which may help to see this comparative research as contributing for theory;
- The prediction view: which may emerge from the belief that others' experiences can be useful in thinking about what might happen in own institution. By these, universities can learn from each other.

The results are hoped to be helpful for both AAU and BDU in providing clues on the types and forms of arrangements needed to get on at the entrepreneurial paradigm. Furthermore, it is perceived to be an opportunity to engage faculty, staff, students, and stakeholder in the important discussion of why the higher education institutions should embark on entrepreneurial activities and what the implications are. It could motivate them in finding resources; broadening revenue flows; improving knowledge exchange processes; contributing to local and regional economic and social development; creating an international presence; and above all, in enhancing the reputation, competitiveness and distinctiveness of the university.

It may serve not only the case study universities but also similar other institutions as the basis of planning discussions and for strategic actions that could be undertaken to become entrepreneurial. It may encourage educators to work on fulfilling the necessary and sufficient conditions for

entrepreneurial university. In addition, results might also provide a baseline, against which future university developments towards entrepreneurialism can be examined. In particular, findings of this study can be very helpful to policy makers in the country in academy, industry and government for utilizing entrepreneurship for economic growth, employment and increasing welfare of people.

Finally, results of this study could make contributions to the field of comparative and international education literature. It is hoped to provide additional information to future researchers, to use it, as a stepping stone to conduct further research in breadth and depth.

### **1.5 Delimitation of the Study**

This study is delimited on identifying the state of entrepreneurialism in only two Ethiopian universities, namely Addis Ababa University and Bahir Dar University. For this purpose, it examines the entrepreneurial orientation, the entrepreneurial performance, and the organizational and external entrepreneurial environments in both universities. Besides, the study scrutinizes the diversification of dimensions used by the universities to generate resources. In addition, the relative location of Addis Ababa and Bahir Dar universities in the spectrum of Traditional - Entrepreneurial Paradigm is identified. Further, the relative impacts of the organizational and external environments on the entrepreneurial orientation and performances of universities are tested. Finally, the similarities and differences observed along the variables mentioned above are documented. Of the parameters for comparability are universities in their entirety. Under situations where classifying data on time basis is necessary, a maximum of five years period i.e., from 2010/11 to 2014/15 is considered. This time scope is chosen on the assertion that the entrepreneurial involvement of universities in Ethiopia is legally backed up much better under Article 66 of 'The Higher Education Proclamation of 650/2009' which states about income generation and it is hoped that universities can have the opportunity to carry out entrepreneurial orientation and management from 2010 onwards. Throughout this five years period, universities would have practiced entrepreneurial practices independently, and then the interaction of both entrepreneurial orientation and resource mobilization performance are hoped to be visible.

## **1.6 Limitations of the Study**

One of the more obvious forms of comparative research is in cross-cultural or cross-national research (Bryman, 2012). However, in this study, both cases are public universities in the Federal Democratic Republic of Ethiopia. Consequently, the case study universities are not only guided by a shared political environment but also they attempt to respond in similar ways to uncertainties. Moreover, the macro environment tends to emphasize for harmonization of transformation and change-related practices across universities including innovative processes and curricular activities. Thus, such common contexts are believed to limit comparisons and so did on the explanations.

## **1.7 Definitions of Terms**

Autonomy “Independent action undertaken by entrepreneurial leaders or teams directed at bringing about a new venture and seeing it to fruition,” (Miller’s 1983; Burgelman, 1984; Hart, 1992; MacMillan & Day, 1987; Venkatraman, 1989; in Rauch, et al., 2009:7).

Competitive aggressiveness: “Intensity of a firm’s effort to outperform rivals” (Miller’s 1983; Burgelman 2009:7), 1984; Hart, 1992; MacMillan & Day, 1987; Venkatraman, 1989; in Rauch, et al., 2009:7).

Consultancy service: any form of professional or technological service rendered to a client by the University or an academic staff of the University in accordance with the rules and regulations of the University. The types of consultancy services include research, training, program/project evaluation, production of materials, advisory or any other service of a professional or/and technical nature (AAU, Senate Legislation, Art.140.1).

Enterprise education: It aims to produce graduates with the mindset and skills to come up with original ideas in response to identified needs and shortfalls, and the ability to act on them. In short, having an idea and making it happen. Enterprise skills include taking the initiative, intuitive decision making, making things happen, networking, identifying opportunities, creative problem solving, innovating, strategic thinking, and personal effectiveness. Enterprise education extends beyond knowledge acquisition to a wide range of emotional, intellectual, social, and practical skills (QAA, 2012: 8).

Enterprise: It is defined here as the application of creative ideas and innovations to practical situations. This is a generic concept that can be applied across all areas of education. It combines creativity, ideas development and problem solving with expression, communication and practical action. This definition is distinct from the generic use of the word in reference to a project or business venture (QAA, 2012: 8).

Entrepreneur: Someone who does not only create job opportunities, but also as someone who introduces new ideas to the market and creates solutions for the day-to-day issues (Nacuta, 2014:12).

Entrepreneurial Activity: It is referred to revenue-generating activities: (a) that are profit based self-supporting operations that go beyond traditional sources of tuition revenue, such as business development activities and retail sales operations; (b) that develop and enhance traditional income streams such as endowment and tuition; or (c) that involve both traditional and nontraditional aspects, such as distance learning (Riggs, 2005:10).

Entrepreneurial Management: A “*mode of management*” that is proactive, opportunity-driven, and action-oriented (Shane and Venkataraman, 2000).

Entrepreneurial orientation: A multidimensional construct able to characterize and distinguish the methods, practices and decision-making styles of firms that act entrepreneurially (Lumpkin and Dess (1996).

Entrepreneurial university: It is a step in the natural evolution of a university system that emphasizes economic development, in addition to the more traditional mandates of education and research (Rothaermel, et al. 2007:708). It is a university that strategically adapts the entrepreneurial mindset throughout the organization and extensively practices academic entrepreneurship which is extended beyond the boundary of the university through university-industry technology transfer activities (Yusof, et al., 2012:86).

Entrepreneurialism: In a university setting, it is not simply about generating resources but also both of institutional adaptiveness to a changing environment and of the capacity of universities to produce innovation through research and new ideas (Shattock, 2009:4).

Innovativeness: “Predisposition to creativity and experimentation through introduction of new products and services as well as technological leadership via R and D in new processes” (Covin & Slevin, 1991; Miller, 1983; Miller & Friesen, 1978; Venkataraman, 1989 in Rauch, et al., 2009:6)

**Intrapreneur:** An employee within an organization who is given freedom and financial support to create new products, services, systems, etc., and does not have to follow the corporation's usual routines or protocols (Collins English Dictionary, 2011).

**Opportunities:** Situations in which new goods, services, raw materials, markets and organizing methods can be introduced through the formation of new means, ends, or means-ends relationships (Eckhardt and Shane, 2003).

**Proactiveness:** “An opportunity-seeking, forward-looking perspective characterized by new products and services ahead of the competition and acting in anticipation of future demand” (Covin & Slevin, 1991; Miller, 1983; Miller & Friesen, 1978; Venkatraman, 1989 in Rauch, et al., 2009:6)

**Research Contract:** Research projects that are in response to a specification given by a funding body.

**Research grant:** Fund received by government or charitable funding bodies, following a proposal drawn up by academic researcher(s).

**Research Universities:** A Doctoral or research universities typically offer a wide range of baccalaureate programs, and are committed to graduate education through the doctorate. If they award 50 or more doctoral degrees per year across at least 15 disciplines, they are classified as extensive research universities. If they awarded at least 10 doctoral degrees per year across three or more disciplines, or at least 20 doctoral degrees per year overall, they are classified as intensive research universities (Carnegie, 2001:1)

**Risk-taking:** “Taking bold action by venturing into the unknown, borrowing heavily and/or committing significant resources to ventures in uncertain environments” (Covin & Slevin, 1991; Miller, 1983; Miller & Friesen, 1978; Venkatraman, 1989 in Rauch, et al., 2009:6)

## **1.8 Organization of the Study**

This study is divided into seven chapters. Chapter 1 introduces the subject of the dissertation, provides the problem statement, and explains purpose, research gap, and significance of the study. In addition, it presents an outline of the study. It also reveals the delimitation, limitation, and organization of the study, and fundamental terms are defined. In Chapter 2, the topic of the

dissertation is put into context. Some explanations are given about the Federal Democratic Republic of Ethiopia, its socio-economic situations including the entrepreneurial ecosystem.

Chapter 3 deals on theoretical review where description of the theories like the knowledge Spillover Theory, Resource-Based View, Resource Dependency Theory, Theory of Marketization, Attitude Theory, and Institutional Theory are discussed along different approaches of entrepreneurship research. Further, the models which were suggested about entrepreneurial university from different perspectives are elaborated.

Chapter 4 deals with empirical review and provides a review of the relevant literature of entrepreneurship. In this section the conceptual and definitional issues about entrepreneurial university, the reasons of creating an entrepreneurial university, the indicators of university entrepreneurialism which includes like entrepreneurial orientation, entrepreneurial performances and institutional proximity towards university entrepreneurialism are reviewed and discussed. This chapter ends with a Conceptual Framework used for this study.

Chapter 5 presents the methodology of the study including the philosophical and methodological issues, the target and sample populations including the strategies used; it presents the operationalization of the variables. Further, data collection process and analysis are described. This chapter also contains information about different analytical tools. Chapter 6 deals ultimately on the analysis, presentations, and interpretations of findings. In Chapter 7, results are presented discussed, summarized, and finally, conclusions and implications are forwarded.

## **CHAPTER II: COUNTRY PROFILE AND THE NATIONAL CONTEXT OF ENTREPRENEURSHIP IN HIGHER EDUCATION**

### **2.0 Overview**

This section presents some information about the Federal Democratic Republic of Ethiopia (FDRE), a country in which this dissertation is conducted. Its governance, location, demographic and socio-linguistic situations are highlighted. Besides, the economic situations are elaborated and some points on the education system of the country in general and higher education in particular are mentioned. Finally, explanations are given about the entrepreneurial ecosystem in Ethiopia.

### **2.1 The Federal Democratic Republic of Ethiopia: Location, Governance, Demographic and Socio-Linguistic Issues**

Ethiopia is the ninth largest country in Africa and is located in the northeastern region, popularly referred to as the Horn of Africa. Ethiopia extends from 3<sup>0</sup>- 15<sup>0</sup> north of the equator and 33<sup>0</sup>-48<sup>0</sup> east of the Greenwich Meridian with the total area of 1.14 Million Sq. Km. Ethiopia is landlocked country bordered by Kenya, South Sudan, Sudan, Djibouti, Eritrea, and Somalia. In the year 2015, Ethiopia had an estimated population of 98.9 million, which ranks 13<sup>th</sup> in the world and the second-most populous in Africa; after Nigeria. It is also one of the world's oldest civilizations (<http://worldpopulationreview.com/countries/ethiopia-population>). Ethiopia is a home to various ethnicities, predominantly the Oromo at 35% of the country's population and the Amhara, who account for 27%. Other major ethnic groups include the Somali (6%), Tigray (6%), Sidama (4%), Gurage (2.5%), Welayta (2.2%), Afar (1.7%), Hadiya (1.7%), and Gamo (1.5%). Afro-Asiatic people account for most of the population (World Population Review, 2015). In terms of languages, Amharic is the lingua franca and the federal working language, while the rest major languages are regional working languages and spoken by the respective nationalities (<http://worldpopulationreview.com/countries/ethiopia-population>)

Ethiopia adopted a constitution that established the Federal Democratic Republic of Ethiopia in 1995 (FDRE, 1995). The federal government is responsible for national defense, foreign relations and general policy of common interest and benefits. The federal state comprises nine autonomous states vested with power for self –determination and two city administrations. The FDRE is

structured along the lines of bicameral parliament, with council of People's Representatives being the highest authority of the federal government. Members of both parliaments are elected by universal suffrage for a five-year term. The federal state is headed by a constitution president and the federal government by an executive prime minister who is accountable to the Council of Peoples' Representative. Each autonomous state is headed by a state president elected by a state council. The judiciary is constitutionally independent. Regional states have considerable authority and responsibility, ensured by the constitution, which they exercise and discharge through councils at region, zone, woreda and kebele levels. FDRE is composed of states which are delimited on the basis of settlement patterns, language, identity and consent of the peoples concerned (Ethiopian Government Portal, 2015).

## **2.2. Economy**

The economy of Ethiopia has experienced strong and broad based growth over the past decade, averaging 10.8% per year in 2003/04 - 2013/14 compared to the regional average of 4.8%. The country's per capita income of \$550 is substantially lower than the regional average (Gross National Income, Atlas Method). However, growth was driven mostly by modernization of agriculture (which accounts for 80 percent of employment), commodity boom, public investment, and – with the exception of financial intermediation – expansion of low value-added services (Geiger & Moller, 2013). For the most part, performance of the manufacturing sector and high-value added services remained subdued (African Development Bank, OECD, UNDP and UNECA, 2012). The manufacturing subsector contributed less than 4 percent of output in 2012; in Brixiova & Ncube, 2013). Further, Ethiopia's growth was based on high levels of public investment (in infrastructure, public enterprises), while private sector drivers of growth have been neglected (IMF, 2012). Growth revealed that public investment accounted for most of the growth recorded since mid-2000s, and specifically for 2/3 in 2011/2012 (IMF, 2012, and Geiger & Moller, 2013). More important, the heavy reliance of the Ethiopia's economic performance on public investment and the burden it has put on the country's public finance have risen questions about sustainability of the country's growth (African Development Bank, OECD, UNDP & UNECA, 2013). A growing economy is considered necessary to promote employability of the youth which constitutes a larger percentage of its population, i.e., 64.1% of the population is below 25 years of age with a net population growth of 2.89% (CIA, 2014). Accordingly, the

government aspires to reach middle income status over the next decade (2025). To achieve high and sustained growth and reach middle-income status by 2025, there are calls for private sector to drive growth (in Brixiova & Ncube, 2013). Despite the firm economic growth, Ethiopia is facing high unemployment among its young population. It can be argued that the recent developments in the higher education sector required a strategy that would ensure employment of the fast growing number of graduates.

### **2.3. Education System**

The achievement of the long-term vision of transforming Ethiopia into a middle-income country demands a transformation of the economy through, among other things, conscious application of science, technology and innovation as the major instruments to create wealth. This, in turn, requires unfolding commitment to increasing the overall level of education of the population and a focus on science and technology education in particular. In relation, the Education and Training Policy of Ethiopia (TGE, 1994) resulted in restructuring the previous education system based on the general objectives to develop the physical and mental potential and the problem-solving capacity of individuals by expanding education and in particular by providing basic education for all. It also emphasized the bringing up of citizens who can take care of and utilize resources wisely; trained in various skills, by raising the private and social benefit of education; respect human rights, stand for the well-being of people, as well as for equality, justice and peace, endowed with democratic culture and discipline. Harmful practices are to be differentiated from useful ones; the need to seek and to stand for truth, to appreciate aesthetics; to show positive attitude towards the development and dissemination of science and technology in society; and to cultivate the cognitive, creative, productive and appreciative potential of citizens by appropriately relating education to environment and societal needs.

Further, four Education Sector Development Programs (ESDP I to ESDP IV) were developed to implement the education and training policies. Each program had its own focus, mainly: ESDP-I, focused on improving quality, equity, relevance and efficiency of primary education; ESDP II, on improving curriculum by introducing Civics and Ethics education, expanding the opportunities for enrollment in primary education and building the capacity of the educational system; ESDP III on reinforcing Civics and Ethics education, attaining universal primary education (UPE), and

narrowing the gap of disadvantaged groups (gender, regions, settlements, such as pastoralists, etc.); and ESDP IV, as part of the GTP I, on addressing the current challenges of education, of which, improving the capacity for knowledge creation in science and technology through expansion of access to TVET and higher education (MOE, 2010). Using lessons from the ESDP programs, and the ending Growth and Transformation Plan I (MoFED, 2010) of the government, the Ethiopian educational system is geared also in line with the objectives of the ongoing GTP II. As a result, the Ethiopian education system shows systematic increase in almost all measures of activity in all sub-sectors from pre-primary to higher education (MOE, 2013/14).

Regarding the higher education system of Ethiopia, it has a relatively short history of some 60 years only, but during the past few years, it has undergone both major quantitative and qualitative changes. A succession of new policies was designed and implemented, with the Education and Training Policy (TGE, 1994) being the first major framework for systems reform and transformation. That policy stressed issues of quality and relevance in educational programs and emphasized the linkage of higher education and the country's development. In ESDP IV (2010), the goal of higher education is to develop highly qualified, motivated and innovative human resources; produce and transfer advanced and relevant knowledge for socio-economic development and poverty reduction with a view to turning Ethiopia into a middle-income country by the year 2025. This has, then called for a balanced distribution of higher education opportunities throughout the country by improving access to higher education, in particular to science and technology; increased student learning and personal growth; and improved employability through radical change in the quality of higher education and professional mix.

In the meantime, the government of Ethiopia has shown the entrepreneurial interest in universities. For instance, the change in the philosophy of higher education was followed: in Regulation No.91/2003 by the introduction of cost sharing scheme; and in the legal transformations of higher education with the provisions about Income Generation under Article 66 in Proclamation No.650/2009 so that to ease the burden of financing higher education (FDRE, 2009). The proclamation gives guidelines for Higher Education Institutions (HEIs) to serve as dynamic centers of capacity building, ensuring good governance in the context of an expanding higher education system, and providing an appropriate balance of an institution's autonomy and its accountability to government and to public interests. Further, it has delineated, in Article 26

(5), the responsibility of the higher education institutions to forge relationships and partnerships with industries for mutual benefits on the basis of principled and transparent negotiations and agreements. The Proclamation paid also emphasis to the need for diversifying the funding mechanisms through income generating schemes.

## **2.4 Entrepreneurial Ecosystem**

Since mid-2000s, Ethiopia has been one among the fastest growing economies in the world. However, productive entrepreneurship in high-value added activities has made limited contributions to this growth, in part because of a weak business environment. Moreover, the low-productive firms in the informal sector still account for a large share of employment (Brixiova & Ncube, 2013). The private sector in Ethiopia gained more prominence in 1991, after the socialist Derg regime was replaced. The subsequent government introduced market reforms with a view to stimulating growth through a vibrant private sector, especially small and medium enterprises (SMEs). Two decades later, however, the record has been mixed. Public enterprises and low productive firms in the informal sector continued employing the majority of the population. Highly productive SMEs can be only found in selected sectors and regions. In sum, the rapid growth driven by public investment, agriculture and few exceptional sectors notwithstanding, a large part of the country experienced high unemployment, low productivity, low-paid jobs, and poverty. Developing the country's private sector and productive SMEs is thus a key policy challenge (Brixiova & Ncube, 2013). The heavy role of the state sector in the non-agricultural output and low job creation in the formal private sector make the country akin to an early-stage transition economy. At the same time, Ethiopia exhibits characteristics of a typical low income country, such as a large and dualistic informal sector; high share of agriculture in the outputs; and the lack of enabling business environment, among others.

Ethiopia's aim to reach middle income levels by 2025 implies moving to the efficiency-driven stage among the three specific global economic development stages (as distinguished by Porter, 1990; Porter et al. 2002): (1) *factor driven stage*, (2) *efficiency-driven stage* and (3) *innovation-driven stage*. The first *factor-driven stage* is marked with high rates of non-agricultural self-employment. Sole proprietorships i.e. the self-employed– probably account for most small manufacturing firms and service firms. Almost all economies experience this stage. These

countries neither create knowledge for innovation nor use knowledge for exporting (in Acs, 2008: 123). To move into the second *efficiency-driven stage*, countries must increase their production efficiency and educate the workforce to be able to adapt in the subsequent technological development phase. The efficiency-driven stage is marked by decreasing rates of self-employment. There are several reasons to expect entrepreneurial activity will decrease as economies become more developed (Kuznets, 1966; Schultz, 1988; in Acs, 2008: 124).

The third *innovation-driven stage* is marked by an increase in entrepreneurial activity. There are reasons to the rise of entrepreneurial activity in the final stage of economic activity. First, the innovation-driven stage is marked by decreases in the share of manufacturing in the economy. Second, technological change during the postwar period has been biased towards industries in which entrepreneurial activity is important (Jorgenson, 2001; Wolday, et al. 2015). Improvements in information technologies such as telecommunications may increase returns to entrepreneurship. Express mail services, photocopying services, personal computers, the internet, web services and mobile phones services make it less expensive and less time consuming for geographically separate individuals to exchange information. One aspect of the startup process is the source of knowledge for new firms. Contemporary theories of entrepreneurship generally focus on the recognition of opportunities and the decision to exploit them.

While most developed countries are in the innovation-driven stage, most developing economies including Brazil, Russia, India and China, (BRIC countries), are in the efficiency-driven stage. In order for economies to move into the innovation-driven stage, it is necessary for them to develop environmental conditions conducive to entrepreneurship. Several countries have achieved this in the past decade including Korea, Ireland, Israel, and Taiwan to name few (Acs, et al., 2007; Acs, 2008: 125). Therefore, it is expected that in the early or middle stage of economic development, the efficiency-driven stage, entrepreneurial activity would be negatively related to economic development since most people would be trying to move from self-employment to wage employment. In developed economies, rather it is expected entrepreneurial activity to be positively related to economic development as people shift from wage work to entrepreneurial activity, the innovation driven stage (Acs, 2008: 126).

In relation, it is important to see the entrepreneurial position of Ethiopia. The Global Competitiveness Index (GCI) framework identifies the various factors that determine or facilitate

the transition from one development stage to another (Sala-i-Martin, et al., 2013). The factors range from institutions, infrastructure, macroeconomic environment, financial market development, to business sophistication and innovation. Based on these factors, GCI is compiled and ranges from 1 to 7, with 7 being the most desirable outcome. Consequently, this metric indicates that Ethiopia is still in the factor driven development stage (IMF, 2014). Ethiopia's policies to promote entrepreneurship—necessary to transition out of the factor driven stage—need strengthening. The country's score in the 2014 Global Entrepreneurship and Development Index (GEDI), which captures the contextual features of entrepreneurship across individual and institutional variables, is 19.8 out of 100. It ranks 111 out of 121 countries (International Monetary Fund, 2014).

Ethiopia's development strategy has favored heavy investment in capital and labor. However, to World Bank (2014) despite their criticality, capital and labor would not be enough for high and sustained growth to take place. There is a need for entrepreneurship to connect them. Ethiopia needs to invest not only in capital and labor, but also in entrepreneurship. For instance, these three major conglomerates account for more than 30 percent of the South Korea's GDP. Entrepreneurship is said to be critical in the process of structural change and industrialization. Entrepreneurial innovation could lead to reallocation of resources from the traditional or agricultural sector to the modern, especially manufacturing sector (Gries & Naudé, 2010: in IMF, 2014).

The literature also suggests that education including entrepreneurship is critical as it contributes to job creation and leads to considerable reduction of poverty. Governments have been pursuing policies aimed at promoting small and medium business enterprises which they consider as breeding grounds for entrepreneurs. Some higher education institutions have been pushing the concept of entrepreneurial universities. Hence, interest in entrepreneurship has been steadily growing (Abubakar, 2010; Mudde, et al., 2015). Ethiopia had been pursuing strategies to promote SMEs to spur the economies' growth and transformation. For instance, some twenty years ago Ethiopia had only two universities with an enrolment around ten thousand. Today Ethiopia boasts of having established 31 universities, which currently are at different levels of growth, and the foundation of another 11 universities has been announced in 2015. But once they become fully operational, some 500,000 students are expected to be enrolled.

The attention given to entrepreneurship in Ethiopia is also reflected by the establishment of the Entrepreneurial Development Centre (EDC-Ethiopia, 2013). EDC is a quasi-government entity established under the framework of the Entrepreneurship Development Programme (EDP) in partnership with the United Nations Development Programme (UNDP). The center aims to establish best practices on Entrepreneurship Development to create and foster a large number of successful Ethiopian Entrepreneurs and to boost the growth of micro and small enterprises (MSEs). The center, on top of building the capacity of entrepreneurs by providing innovative entrepreneurship training programs and customized business development support, is entrusted to build the capacity of government institutions which are involved in entrepreneurship development endeavors. Consistent with this, the center has been providing different types of training to entrepreneurship trainers selected from different public universities. It has also supported five public universities in setting up a Center of Excellence in Entrepreneurship (CoEEs) in 2014 including Addis Ababa University (two CoEEs –in College of Business and Economics and in Addis Ababa Institute of Technology - AAiT); and in Bahir Dar University. In recent years, attempts have been made by the Ethiopian government to introduce entrepreneurship in an organized manner. Among the major attempts is the establishment of federal and regional micro enterprise development agencies (FEMSEDA and REMSEDA) which have their structure extending to the next lower level of government administrative hierarchy, the district, to spearhead the development of micro, small and medium enterprises and in turn to effectively deal with unemployment of the higher education graduates (Mudde, et al, 2015).

Moreover, the Federal Democratic Republic of Ethiopia has prepared a science, technology and innovation policy focusing on building the technology capacities of medium and higher manufacturing and service enterprises and has embarked on real activities. Amongst the 11 highly important issues included in the Science, Technology and Innovation Policy is the linkage of universities, technical and vocational training institutions, research institutions and the industry. Further, the Ministry has issued directives in order to facilitate linkage and coordinated system of procedures among higher education and research institutions as well as the industry sector to assist the activities of research and technological development (Ministry of Science and Technology, 2013). This shows the interest to make use of new knowledge and research outcomes from higher education institutions in manufacturing and service enterprises. Moreover, the overall context consistently point at the need and the relative potentials for entrepreneurship in Ethiopia where

institutions of higher education have an instrumental role. The present study will shed lights on this important aspect of entrepreneurship in Ethiopia through an examination of the situation at the two sampled universities, namely AAU and BDU.

## **CHAPTER III: THEORETICAL ISSUES AND FRAMEWORK FOR THE STUDY**

### **2.0 Overview**

This chapter consists of three sub-sections. In the first section, the theories drawn from the economic, socio-psychological and strategic management approaches of entrepreneurship research but with proper relevance to this study are presented and discussed. After discussions on each theory, concise reviews on the models of entrepreneurial university are made in the second section of this chapter. Finally in the third section, the conceptual framework for the present research study is developed and presented.

### **3.1. Theoretical Lenses on Entrepreneurship Research**

There are various theoretical approaches to entrepreneurship research. Given the diverse nature of entrepreneurship research and its use as a multidisciplinary activity, the primary contributions in the theoretical development of entrepreneurship research come from three disciplines: economics, social psychology, and strategic management (Gathungu, Aiko & Machuki, 2014). Consequently, this research has used some of the theories among the economic, socio-psychological and strategic management approaches of entrepreneurship research. One immediate concern may be the question whether or not the application of entrepreneurial and organizational theories to academic organizations is appropriate. This is due to the fact that non-profit public universities differ quite substantially from profit-seeking companies at which these theories were initially derived. However, the importance of these theories to university entrepreneurial research is well documented. For instance, Etzkowitz, et al. (2000) indicated that through the collaborative effort of all three approaches, a significant image of entrepreneurial behavior, within an organization or individual, can be captured. In particular, the substantial transformations within universities from the function of knowledge production to a socio-economic function within the contemporary innovation process, the competitive behavior among peer institutions for reduced financial resources, for top quality students or for annual rankings are resulted in change of their functions and demands, which puts university organizations on a more level playing field with other non-university organizations. As a result, the fact that universities operate in a competitive environment makes it logical that this phenomenon is investigated using business, economic or management theories.

### 3.2 The Economic Approaches to Entrepreneurship Research

Research taking the economic approach has examined the profitability or growth of organizations in evaluating their entrepreneurial nature. The use of economic measures has enabled the analysis of entrepreneurship at multiple levels, including the industry, regional, national, global, and organizational levels (Gathungu, et al., 2014). Of the various theories within the economic literature, this study considered four theories related to the economic approach of entrepreneurial research, i.e. Theory of Marketization (TM), Knowledge Spillover Theory of Entrepreneurship (KSTE), Resource-Based View (RBV), and Resource Dependency Theory (RDT). The essentials of these theories which used to serve as lenses for this study are presented below.

#### **The Theory of Market Orientation (MO)**

Marketization, according to Jongbloed (2003: 115), refers to “*policies that are aimed to establish or enhance the eight kinds of ‘freedom’ for providers and/or consumers in the higher education sector*”. *For providers*: freedom of entry, freedom to specify the product, freedom to use available resources, freedom to determine prices; and *for consumers*: freedom to choose provider, freedom to choose product, adequate information on prices and quality, direct and cost-covering prices paid. Marketization in higher education commonly refers to several incoming-earning strategies that universities have adopted. These strategies are related to tuition fees, massification of higher education, privatization, commercialization of research, commodification of knowledge, and entrepreneurialism (Clark, 1998). One can argue that the university’s markets are *students*, who are provided with education; *companies*, who are provided with innovation and development, or the *general public*; who is provided with progressive research.

In order to respond to this entrepreneurial competitiveness culture, public HEIs have to adopt new managerial doctrines that are consistent with private business practices, and act as though they are private entities, with a greater orientation to the student as a consumer (customer), higher education as a ‘product’, ‘market niches’, ‘pricing’ and aggressive marketing (Slaughter & Leslie, 1997, Johnstone, Arora & Experton, 1998; Mok & Tan, 2004). Thus, adoption of principles of marketization is a response of public HEIs to compete within the new economic realities of the era. In relation, Cosenz (2013: 22) argued that

As far as the subject of universities marketisation is concerned, the metaphor of the “*Ivory Tower*” by Powell & Owen-Smith (1998) is by now famous; according to such metaphor, as universities are gradually identified with commercial richness, they also lose their uniqueness in the society. They are any longer seen as the ivory towers of intellectual activities and truth thoughts, but rather as enterprises run by arrogant people aiming at capturing as more money and influence as possible.

Originally, the corporatization and marketization of the universities have their foundation in neo-liberal politics that is premised on the assumption that the market can replace the democratic state as the primary producer of cultural logic and value. Neo-liberalism, also known as Thatcherism and Reaganism, “*has been the dominant global political economic trend adopted by political parties of the centre and much of the traditional left as well as the right*” (McChesney, 1999:7). Influenced by neo-classical economic theory, the central principles of neo-liberal policy are free markets and free trade; promoting deregulation, privatization of government operations, entrepreneurialism, competition, consumer choice, marketization, reduction of government budgets, and reduction of labour cost (Faireweather, 1988; Giroux, 2002; Klees, 2008; McChesney, 1999; Olssen & Peters, 2006; Slaughter & Leslie, 1997; Treanor, 2005; Williamson, 1990). These policies began to be implemented world-wide by the IMF, the World Bank and the Organization for Economic Cooperation & Development (OECD) in the 1980s through their Structural Adjustment Programmes and the restructuring plans they imposed on countries that borrowed money for development (Cote, et al., 2007; de Siqueira, 2005; Giroux, 2002; Klees, 2008; Teodoro, 2003). Therefore, in the underdeveloped countries the expansion of market practices into higher education is seen as a function of two global institutions, the World Bank and the Organization for Economic Cooperation and Development, that encouraged adopting the American model of higher education advocating privatization and diversification of the revenue base (Munene, 2008). In fact, these and other meta-organizations played an important role “*in the global move towards market logics*” (Djelic, 2006: 68).

Although as a political economic ideology, neo-liberalism has permeated social policies, including education, throughout the world, it forces nation-state governments to focus more on acting as economic growth promoters for their national economies and creating macroeconomic

stability than as protectors of the national identity or the welfare systems (Carnoy & Rhoten, 2002; Lingard, 2000; Torres & Schugurensky, 2002). Further, marketization of education is seen as “a process whereby education becomes a commodity provided by competitive suppliers, educational services are priced and access to them depends on consumer calculations and ability to pay” (Yin & White, 1994: 217). Moreover, higher education is seen as an investment good to achieve economic prosperity (World Bank, 1998); and students are considered as “*self – interested entrepreneurs seeking to maximize fiscal return on their investment*” in higher education (Hyslop-Margison & Sears, 2006:3). Therefore, it is posited that the cost of higher education should be offloaded to individuals, who will then benefit from it, rather than provided by the state (Cote, et al., 2007; Lingard, 2000; Lynch, 2006; Mok, 2007; Torres & Schugurensky, 2002). In addition, HEIs have to compensate for diminished government funding through liaisons and partnerships with business and industry that focused on innovative product development, and through marketing of educational and business services (Fairweather, 1988).

From this perspective, quality and objectives of higher education are determined by labor market conditions and students’ learning needs (now considered customers’ demand), which neutrally is a part of the neo-liberal ideology (Nguyen, 2009). In other words, neo-liberalism has promoted market-oriented policy in higher education, making higher education a “service” that is tradable in the market, or allowing marketization of higher education to happen (Nguyen, 2009). Under the neo-liberal agenda, governments, especially those of the developing countries, put under pressure to cut down public spending on education while trying to provide a supply of skilled workers in order to attract foreign capital (Carnoy & Rhoten, 2002; Torres & Schugurensky, 2002). Public-funded HEIs are now held accountable by governments to generate maximum (quality and quantity) outputs from the given financial inputs, as the public began to ask for better accountability of the use of their tax money and to question how the investment in education really could facilitate social and economic development (Ball, 1998; Green, Wolf & Laney, 2000; Jones, 1998).

As a result, HEIs have changed the way they operate and manage themselves in order to become more competitive while having to ensure high quality and improving cost-effectiveness. To Slaughter & Rhoades (2004), it is manifested through increased connections to external resources, the commoditization of goods and services, and private-sector influences on campus. In

particular, advocates of neo-liberal education policy have criticized bureaucracy and efficiency in education, “*arguing that efficiency and effectiveness are best achieved through market-or quasi-market-systems where autonomous providers compete with each other for their shares of the educational market*” (Green, et al., 2000:55). Consequently, universities and colleges operating under the context of marketization policy are to exhibit at least the following principles: (1) self-financing; (2) adopting market discourse and the use of the economic market as a model for managerial practice; (3) focusing on efficiency, economy and effectiveness; (4) revenue generation and cost effectiveness; (5) competition; (6) effectiveness; (7) institutional autonomy; (8) quality assurance (Dill, 2003; Hanson, 1992; Johnstone, 1998; Robertson & Dale, 2000; Welch, 1998).

It is observed that higher education institutions that received funding from governments have to comply with quality assurance standards while having to meet increasing market demand for higher education graduates (Giroux, 2002; Klees, 2008; Lynch, 2006; Mok, 2007). Therefore, HEIs now have to compete for resources in a market context; whether these resources are from government grants, private funding, research contracts, university-industry partnerships or student tuition fees (Johnstone, 1998 & 2003; Slaughter and Leslie, 1997). Further, entrepreneurialism in HEIs happens in the broader context of a search for revenue across the universities’ activities. Henceforth, the public space in which universities operate is being redefined, in addition to what is appropriate behavior within that space.

Regarding the pros and cons of marketization, it is more or less taken for granted that market forces “*offer the promise of improved performance in meeting public services*” (Newman, et al., 2004: 43). In many countries, marketization of the university was initiated by the government and considered necessary; the planned outcomes of marketization were seen as positive. For instance, increasing the accessibility of higher education and a broader choice of institutions and study programs (Scott, 1999). The advocates of education marketization stand for the fundamental idea of making the system more efficient, responsive, productive and high-quality by introducing market mechanisms into it. On the other hand, as Yin & White put it, “*while market forces have breathed new life into the higher educational system, they have also brought new problems*” (Yin & White, 1994: 218). For instance, some universities lower entrance standards to attract more applications. The University professors are pressured by the administration to teach “*more*

*pleasing and entertaining classes*” (Hugstad, 1976: 311), to soften grading practices – all in order to satisfy students. Thus, a conflict of interests arises, it being problematical for the University to satisfy students and faculty needs simultaneously. So, universities should learn how to balance between values of marketing and institutional and social values, how to maximize the benefits and minimize risks of academic marketing (Kranchenberg, 1972; Litten, 1980; Gibbs, 2008).

### **Knowledge Spillover Theory of Entrepreneurship**

The knowledge spillover theory of entrepreneurship (Acs, et al., 2009; Acs, Audretsch & Lehmann, 2013) is based on the assumption that starting an innovative venture requires knowledge. Since a large part of the necessary knowledge resides in universities, non-university public research organizations, and incumbent firms, the approach views innovative start-ups as a form of knowledge spillover, that is, the knowledge of these institutions spills over into the newly founded business. The theory further argues, essentially, that knowledge developed in some institutions might be commercialized by other institutions, and that entrepreneurship is one way that the ‘economic agent with a given endowment of new knowledge’ can best appropriate the returns from that knowledge (Acs, et al., 2004). For instance, incumbent firms may be unaware of the economic value of the knowledge or they may be unwilling to exploit it because they fear cannibalization of their established product portfolio. Universities and other research institutes either may have no incentive for commercializing their knowledge or not permitted to, due to their status as nonprofit organizations. Hence, if someone with an idea about how to turn knowledge into a new product finds it impossible to realize this idea in his or her incumbent organization, then starting an own business may be the only feasible option for putting the idea into practice, especially since, due to the uncertainty of their economic value, new ideas in themselves cannot be traded on the open market (Fritsch & Aamoucke, 2014). Therefore, a key assumption of the theory is that the knowledge commercialized by the innovative start-up would not otherwise be exploited. Earlier, Audretsch and Lehmann (2005) demonstrated that the number of new firms located close to a university is positively influenced by its knowledge capacity (Senyard, Pickernell, Clifton, Kay & Kease, 2008). In this sense, the established technology transfer offices should have the role of accelerating technology spill-over and innovation from universities (Siegel, Veugelers & Wright, 2007).

In the knowledge creation system, one can distinguish academic research on the one hand, and industrial research and development (R&D) on the other hand. This is seen as having potential economic value. Moreover, in the knowledge-spillover theory of entrepreneurship (Acs, Audretsch, Braunerhjelm & Carlsson, 2004), it is argued that levels of knowledge-based entrepreneurship might be affected by the ability of private firms and public institutions to generate new knowledge; but also by the degree to which this new knowledge is disseminated to the wider economy; as well as the degree to which individuals and firms are able to exploit this new knowledge. The absence of a domestic industry base and/or the absence of domestic knowledge-creating institutions, such as public research institutes, might mitigate against the emergence of knowledge-based entrepreneurship (Audretsch & Lehmann, 2005), as might the absence of foreign multinationals in a region, able to import such knowledge from outside (Senyard, et al., 2008).

The theory further, argues that individuals or organizations with market knowledge or other resources may not be aware of the new knowledge because of a lack of dissemination, and therefore fail to invest, or under-invest, in the knowledge or in new firms (Audretsch, 2004). Individuals may also fail to commercialize new knowledge via entrepreneurship, if they underinvested in commercialization activities or fail in their attempts to commercialize due to a lack of market knowledge, ability to manage the new knowledge effectively or insufficient entrepreneurial ability. Therefore, encouraging the take-up of new innovations through dissemination via education and training-based processes allows individuals to be provided with knowledge about the innovation itself, as well as being inspired and convinced of the possibilities for success and mutual gain (Goffin & Mitchell, 2005). Such explicit, codified knowledge can be encapsulated in formats and transferred to users who are able to interpret and utilize it independently from the context in which it was created (Howells, 2002; in Senyard, et al., 2008:76).

According to Audretsch and Keilbach's statement (2007: 1244), "*contexts rich in knowledge will inherently be characterized by a greater degree of uncertainty, leading to greater entrepreneurial opportunities*". On that basis, the authors claim that contexts rich in knowledge, with high levels of investment in research and development, generate a higher level of entrepreneurship, compared

to contexts impoverished in knowledge. In addition, an entrepreneurial orientation by academia might put regions and national states in an advantageous position in emerging knowledge-intensive fields of economic activity. At the same time, such entrepreneurial orientation requires reconciliation with the scientific missions of the academia.

Principally, it is explained that academic entrepreneurship serves as a “conduit” for the spillover of knowledge. Academic entrepreneurship can be defined as *“an activity of a university scientist, PhD student or a post-doc researcher, who sets up a business company in order to commercialize the results of his or her research”* (Franzoni & Lissoni, 2009). These knowledge-intensive ventures act as crucial channels of knowledge transfer by building business concepts on the basis of knowledge acquired during academic education and former employment at the university. In that sense, the founders of such ventures are determined to further their research and commercialize its outcomes in which their incumbent institutes have little interest (Koschatzky & Hemer 2009; in Godowska, 2012:184).

The notion of academic entrepreneurship consists of two types of ventures: spin-offs (which are funded by university scientists and are financially, legally or institutionally associated with the incumbent organization) and spin-outs (start-ups which are independent of the parent institution). In both cases, there exist numerous internal impediments to converting academic research into economically relevant knowledge. Those barriers are mostly organizational, such as university rules on intellectual property, lack of incentives to commercialize research output, as well as behavioral barriers, such as faculty’s dislike for commercialization and entrepreneurial attitudes of scientists. The higher the barriers, the more important share of research transfer is carried out by skilled labor and human capital, compared to commercialization of knowledge (Carlsson, et al., 2009). Apart from internal factors influencing the emergence of academic firms, regional environment plays a crucial role in promoting and facilitating development of academic entrepreneurship. Among regional factors one can point out at the system of incubator organizations and institutions promoting entrepreneurship (technological parks, clusters, centers of technological transfer); the quality of government and self-government measures of entrepreneurship support; and the efficiency of financing institutions, as well as entrepreneurial-friendly climate that determine positive attitudes of bureaucracy and society towards entrepreneurs (Koschatzky & Hemer 2009; in Godowska, 2012).

Therefore, covering entrepreneurship and industry collaboration in the mission of universities is cited as a good starting point for removing the barriers on academic entrepreneurship and collaboration with industry. Otherwise, as it was stated by Yildirim and Askun (2012), failure of entrepreneurship in universities and insufficient industry-university collaboration are caused by the fact that the missions of universities and industry are positioned far from each other in the origin. If these two parties have problems in understanding each other and their relations are challenged by long, expensive, exhausting and impractical negotiation processes during the realization of collaborations and partnerships, knowledge spillover is unexpected or underdeveloped. Hence, demands are for detailed knowledge spillover policies that minimize bureaucratic processes while maintaining transparencies.

### **Resource-Based View**

With regard to the dimensions relevant for this dissertation, the resource-based view is an organizational resource-oriented theory with an internal perspective. The Resource-Based View has its origins in Penrose's classic work about growing firms and their desire to diversify (Penrose, 1958:1), later developed by Wernerfelt (1984) and further improved into a comprehensive approach, by Barney (1991:15). Given its attempt to align internal factors, this theory has received considerable attention to skills and resources, with external optimal performance measures, such as profitability, growth rate, market share, and return on investment.

The resource-based view of the firm was developed from studies of the for-profit sector. Further, its application in higher education is also documented (Powers, 2000: 34; in O'Shea, Allen, Chevalier & Roche, 2005:996).

Initially, Penrose (1958) asked the question why companies enter into new markets once they have developed a new product, as opposed to selling it to the highest bidder. Her answer was market imperfection, which required firms to develop idiosyncratic skills, or resources. Consequently, companies within an industry are heterogeneous, and have different sets of resources. Therefore, it is the heterogeneity and, not the homogeneity, of resources that gives each firm its unique character (Lockett & Thompson, 2001, 2004). This notion of a firm's resource heterogeneity is the foundation of the resource-based view (O'Shea, et al. 2005). Resource heterogeneity can be observed along different categories. For instance, (Barney, 1991), grouped

resources as (i) financial resources, (ii) physical resources, (iii) human capital resources, and (iv) organizational resources; while later research identified specific resources for entrepreneurial activities including expert knowledge and scientific capabilities, access to key personnel, information and support (Mansfield & Lee, 1996). O’Shea, et al. (2005) also classified the resources into tangible and intangible resources. In both cases, the organizational resources comprise the firm’s organizational structure, planning, controlling, and coordinating systems, culture, and informal relationships between groups within and outside the firm. Firms’ intrinsically uniqueness in historical and social entities are said to be the basis for sustained competitive advantage. This implies, according to Barney (1991), if a firm obtains valuable and rare resources because of its unique path through history, it will be able to exploit those resources in implementing value-creating strategies that cannot be duplicated by other firms. Teece, Pisano & Shuen (1997) also proposed that the past histories of firms make them unique and constrain what they can do in the future. Such “path dependencies”, gives the firm its current set of capabilities and a position relative to its competitors (O’Shea, et al. 2005).

Regarding the human resources, research has shown that a critical human capital resource for the development of cutting-edge technologies is access to persons with expert knowledge and talent (Powers & McDougall, 2005). For instance, as to Zucker, Darby and Armstrong, (1998), ‘star’ scientists from higher quality academic institutions create spinoff firms to capture the rents generated by their intellectual capital. Such capital is tacit and, therefore, it is difficult for lower quality institutions to imitate. DiGregorio and Shane (2003) also suggest that faculty members who develop leading edge innovations may wish to earn economic rents on valuable asymmetric information and it may be easier for academics from top tier universities to assemble resources to create start-ups due to their increased credibility. In addition, the relationship of human capital resources to technology transfer can be significant. According to Powers (2003), one of the necessary conditions for the generation of start-ups from universities is the availability of scientists and engineers with suitable qualifications and know-how in R&D activities. The availability of human capital implies higher skills and knowledge within a university, which is positive for the realization of technology transfer activity (O’Shea, et al. 2005).

Again, if organizations are with financial resources, a body of empirical research supports the view that increased university–industry ties and closer partnerships with industry result in greater

levels of commercialization. Empirical examples include, that Blumenthal, et al. (1996) surveyed 2052 faculty at 50 universities in the life sciences field, and found that industry funded faculty members are more commercially productive (i.e. patent applications and new products brought to the market) than those who are not industry funded. Further, in a cross-sectional study of Carnegie I and II universities, Powers and McDougall (2005) found a positive and statistically significant relationship between annual university-wide R&D expenditure and spinoff activity. Also, Wright, Birley & Mosey (2004) found evidence to suggest that involvement of industry, such as venture capitalists via joint venture spinoffs, may facilitate the emergence of university spinoffs because they have the necessary financial resources and commercial expertise to transfer technologies successfully to the marketplace.

### **Resource-Dependency Theory**

In contrast to an emphasis on internal resource by the resource-based view, resource-dependency theory focuses on external resources that influence the behavior of an organization and its subsequent performance through the perspective of ongoing interactions with society, because *“organizations are inescapably bound up with the conditions of their environment”* (Pfeffer & Salancik, 1978:1). The resource dependency theory focuses on the interplay between an organization and its environment and suggests that *“organizations deprived of critical resources will seek new resources”* (Slaughter & Leslie, 1997:17). Organizations depend on resources, and hence on the environment, for survival. Outside agencies are able to exert some degree of influence over an organization when they control scarce resources that the organization cannot obtain elsewhere (Jaeger & Thornton, 2005). The theory further states that *“others who control resources may be undependable, particularly when resources are scarce”* (Pfeffer & Salancik, 1978, 258). Accordingly, the resource gatekeepers within an institution can affect public service programs (Jaeger & Thornton, 2005). These groups may inhibit or unintentionally sabotage faculty public service efforts. The theory further suggests that formal organizational roles are fashioned to help control and stabilize the exchange of resources between an organization and its environment (Pfeffer & Salancik, 1978), as with the research enterprise, technology transfer and legal departments, and even departmental administrators, may become involved in public service endeavors when faculty are working with external agencies.

Further, resource-dependence theory (Pfeffer & Salancik, 1978; Desa, 2008) states that while firms are dependent on the environment for resources, the environment is not predictable. Consequently, firms take steps to minimize their dependence on any one organization in the environment. The theory makes three principle assumptions about resource constraints. First, while resource scarcity is a common problem faced by all firms, the environment has resources to provide to the firm. A second assumption of resource-dependence theory is that the nature of resources is largely given and unproblematic. Resources remain objective and definable independent of the specific organization embedded in the resource environment. Finally, resources are what they are, organizations either have resources or they do not. Thus, when faced with a new challenge, entrepreneurial firms can attempt two things: a) attempt resource seeking through debt, equity or grants (in Shane, 2003: 171); or b) avoid the problem which can result in disbanding (Sutton 1987; Whetten, 1987), downsizing (Barker & Mone, 1994) or ignoring new opportunities (in Desa, 2008: 26).

Specifically to universities, Wayne (2003:40) argues that “*universities are very dependent on resources provided by externalities. These external resources include federal grants, state government support, private foundations funding, industry contracts, and tuitions from students and their families.*” However, dependency on outside resources can be both good and bad. The benefits are that it is helpful to expand programming to new issues and bring in resources that the university is incapable of providing. If programs are competing for outside resources and winning, then that is a sign for doing something right. Outside funding needs to be balanced with stable and reliable funding from the University. On the other hand, non-competitive funding enables to keep programs focused on educational objectives that may not be important to outside funding agencies (Jaeger and Thornton, 2005). As an organization attempts to gain more control over the activities of outside agencies that can supply needed resources, it must surrender some of its own autonomy in exchange. Hence, organizations experience conflict between the desire to maintain organizational autonomy and the desire to reduce the uncertainty that accompanies the lack of a steady resource stream (Pfeffer & Salancik, 1978). In a time of limited resources, it may be difficult to sustain even a minimal number of engaged faculty in public service work, much less to encourage other faculty to launch public service endeavors. This implies that institutions of higher education, which exist in a competitive culture, need to offer recognition for alternative

pathways to excellence and prestige that involves doing things that are different, such as public service and engagement.

### **3.3 The Socio-Psychological Approach to Entrepreneurship Research**

Of the socio-psychological approaches to entrepreneurship research, the attitude theory is used in this research. The socio-psychological approach has stemmed from personal and social psychology perspectives. Venture capital literature has used this approach in examining traits such as risk-taking propensity and/or competitive aggressiveness of the entrepreneur in relation to other variable outcomes (Rauch, 2009). The attitude theory is defined as the “*predisposition to respond in a generally favorable or unfavorable manner with respect to the object of the attitude*” (Robinson, David, Stimpson, Huefner & Keith, 1991:17). Studies utilizing this approach have focused on the individual traits of the entrepreneur, rather than the organization. As the attitude theory is individual- focused, as opposed to organization- focused theories, it is believed to be particularly useful to study the entrepreneurial orientation of individuals, since it carries a number of elements important to entrepreneurship research (Robinson, et al, 1991; Chaiken & Stangor, 1987: 575; in Boehm, 2008: 59-60)

Robinson, et al. (1991:13) claim that “*attitude is presented as a better approach to the description of entrepreneurs than either personality characteristics or demographics,*” and propose this theory as an alternative for investigating entrepreneurship. They refer to entrepreneurial behavior as attitudes formed through the strength of an individual’s suggestive association; and formed values towards certain entrepreneurial attributes (Ajzen & Fishbein, 1977). Researchers have taken two different approaches on attitude theory: (i) they have looked at attitude theory as a unidimensional construct consisting of affect (feelings) and reaction, or (ii) as a tripartite model, consisting of three types of reactions: affect (feelings), cognition (beliefs/thought), and behavioral intentions (Wyk & Boshoff , 2004; in Boehm, 2008: 59-60). For instance, Robinson, et al. (1991) applied the tripartite model to undergraduate students and tested four attitude sub-scales: achievement in creating a business; innovation in business; perceived personal control of business outcomes; perceived self-esteem in business. Within their sample, they were able to discriminate between non-entrepreneurs and entrepreneurs. Consequently, this study will use the frameworks

of attitudinal theory, as important instruments to assess the entrepreneurial orientation of leadership members of the case study universities.

### **3.4 The Strategic Management Approach to Entrepreneurship Research**

This theoretical approach to entrepreneurship has developed from the strategic management field. This perspective considers the role of the entrepreneur in dictating strategic objectives or actions of the organizations and how the entrepreneur affects the organization through these decisions (Kroeger, 2007). Further, this perspective examines the influence of entrepreneurial decision-making in the midst of risk on new entry commitments of the organization (Gathungu, et al., 2014). Lumpkin and Dess (1996) have stated that the entrepreneurial orientation (EO) refers to the strategy making process which provides organizations with entrepreneurial activities and decisions. This concept captures different practices, activities and processes that help firms to create value and perform effectively.

Of the strategic approaches, the New-Institutional Theory (NIT) was preferred to be used for this study. The theory applied to the research explores the institutional environment which may influence Entrepreneurial orientation (EO) level, and university entrepreneurial performance. NIT provides a useful theoretical lens to inform HEI's decision to pursue the commercialization agenda. It allows looking beyond the economic forces to understand comprehensively the evolution of commercialization and the role of macro actors and their enabling and constraining influences through internal and external pressures. It is clear that HEIs operate within an institutional environment. The institutional environment requires conformity and convergence among HEIs so they can achieve homogeneity and legitimacy thus providing inertia and stability and dispel forces of change. The pressure for conformity and homogenization leads to coercive, normative, and mimetic behavior patterns. *Coercive isomorphism* is a change resulting from political influence; *Mimetic isomorphism*, is a change resulting from organizations' similar responses to uncertainty; and *normative isomorphism* is about commonalities between organizations resulting from the professionalization of a field, such as higher education management (DiMaggio & Powell, 1983). All the three facets of this theory apply to this study.

NIT recognizes the importance of the organization-environment linkages. It characterizes the HEI's institutional environment as the elaboration of institutionalized beliefs, rules, myths, norms,

and procedures to which they must conform if they are to receive the support, acquire the needed resources, and gain legitimacy. This aspect presumably has much greater relevance for HEIs as they are often heavily influenced and constrained by external environmental pressures for greater representation, accountability, and responsiveness from multiple constituencies (Carruthers, 1995; DiMaggio, 1991). Hence, NIT could be used to explain the role of macro actors such as government, professional research organizations, and other local and international organizations connected to the tertiary institutions' commercialization initiatives. In the context of research commercialization, communicative mechanisms provide narratives of past events, actions, and performance that are constructed to demonstrate the appropriate discharge of accountability. Within the HEIs, some of the most common communicative mechanisms include university profiles, strategic plans, annual reports, research reports, newsletters, and web-site based information (DiMaggio & Powell, 1991; Scott, 1987; in Narayan, 2010:69).

Neo-institutional theory is further described by the concepts of normative institutionalism and rational choice institutionalism. *Normative institutionalism* explains that the choices of organizational actors are guided by the norms present in an institution's environment (Tolbert, 1985). Those norms exist due to the pressures present in an organization's external environment, as described by DiMaggio & Powell (1991). *Rational choice institutionalism* explains that individuals attempt to realize their goals in the context of the limited rational choices available in an organization (Trondal, 2002). This implies that the choices made by universities are not independent of their external environment.

Extending the Neo-Institutional Theory (NIT), Oliver (1991) cited in Narayan (2010:69) proposed that organizations display a range of strategic responses to institutional pressures, from compliance to compromise, avoidance, defiance, and manipulation. This theory base is applicable in the sense that Tertiary Education Institutions (TEIs) may refuse to comply with the coercive pressures to conform to the external environment. Instead, they may employ a range of avoidance tactics such as concealment and buffering mechanisms to gain symbolic acceptance and legitimacy. Through concealment tactics they could establish goals, objectives, budgets, and policies but disguise their non-implementation. On the other hand, they could decouple activities from formal structures to gain organizational legitimacy. Thus, NIT offers a potentially valuable

window into entrepreneurial processes, agendas and interactions amongst HEIs and their stakeholders.

### **3.5 Models of University Entrepreneurship**

Different perspectives can be discovered from the works of scientists in the field of entrepreneurial university, namely: (i) Clark's (1998, 2004) entrepreneurial pathways of university; (ii) Etzkowitz's (2001, 2004) norms of the entrepreneurial university; (iii) Slaughter's (1997) capitalization of research or academic expertise; (iv) Rothaermel, Agung & Jiang's (2007) conceptual framework of the entrepreneurial university; (v) Kirby's (2005) Strategic actions of the entrepreneurial university; and Aranha and Garcia's (2014) metamodel of entrepreneurial university were reviewed. The model dealt with the structural transformation of universities was identified by Clark (1998) and states that the framework of Pathways to Entrepreneurial University incorporates a strong central steering core to embrace management groups and academics; an expanded development periphery involving a growth of units that reach out; the diversity in the funding base, not only by use of government third stream funding but from a wide variety of sources; a stimulated academic heartland with academics committed to the entrepreneurial concept; and an integrated entrepreneurial culture defined in terms of common commitment to change. Of which, the first three are related with formal factors and the remaining two to the informal factors.

The model called Norms of Entrepreneurial University, which was proposed by Etzkowitz (2001, 2004) integrated by a set of five inter-related propositions derived from the analysis of entrepreneurial academic development in the USA, Europe and Latin America. As elaborated from his studies, the entrepreneurial university can be expressed in a set of inter-related propositions: (i) the principle of capitalization, (ii) the notion of interdependence, (iii) independence, (iv) hybridization, and (v) reflexivity. The model rests on the concept of the Triple Helix and emphasizes innovation as one of the driving vectors of the relations between government- university-and industries which result in the transfer of knowledge. Under the triple helix model, transformation in the functions of university, industry, and government takes place as each institution assumes the role of the other. The university takes the role of industry, transferring technology to infuse existing firms with new life and helping form new firms in

incubator facilities. Government takes the role of industry, helping to support these developments through funding programs and changes in the regulatory environment. Industry takes the role of the university in developing training and research, often at the same high level as universities.

The model of Capitalization of Research or Academic Expertise, developed by Slaughter (2004) saw universities as victims of governmental financial restrictions, who were forced to engage in entrepreneurial activities in order to survive. She points out that the boundaries between markets, state and higher education have become blurred, and approaches universities as institutions which are trying to take advantage of the new economy by converting university knowledge to products, processes or services. Accordingly, academic capitalism describes a process by which universities integrate with the new economy. This integration involves the creation of new circuits of knowledge that link universities directly to business, the emergence of intermediating organizations who facilitate and guide these knowledge circuits, and at last it includes an expanding managerial capacity of universities. Thus, the emerging model calls for a new combination of traditional processes with entrepreneurial ones. Even though this integration can disturb universities traditional functions and structures, yet they often have proven to be able to coexist as well (Slaughter, 2004).

Kirby's (2005) Strategic Actions of the Entrepreneurial University is guided by eight strategic actions that seek to stimulate entrepreneurship namely, endorsement, incorporation, implementation, communication, encouragement and support, recognition and rewards, organization and promotion. In Kirby's (2005) framework, the university should offer material resources and a support infrastructure (entrepreneurship laboratories, pre-incubation, incubation, science and technology parks, environments for seed capital, and other mechanisms and instruments to support entrepreneurship) that stimulate an innovative environment. The strategic action of recognition and rewards implies the existence of programs and projects that encourage career development, an evolution of compensation and the sharing of equity. The strategic action of organization should implement interdisciplinary research activities, a multidisciplinary entrepreneurship center, educational partnerships and other mechanisms. Finally, the strategic action of promotion consists of entrepreneurial competition activities, highlighting business plan competitions and case studies.

Rothaermel, et al. (2007) proposed a conceptual scheme of the entrepreneurial activities of universities which include: (i) university research; (ii) productivity of the technology transfer center; (iii) creation of new business; and (iv) an environmental context that includes networks of innovation. The first component corresponding to the entrepreneurial research university incorporates twelve key issues, ten of which are identified within the organization and linked to: incentives, status, location, culture, motivations and actions at the faculty, intermediary agents, policies, experiences, definition of roles and identities, experience and technology. The two key issues related to external factors are industry conditions, and government policies. In the second component, involving the productivity of the technology transfer center, eight key issues were identified: technology, methods, systems, structure, faculty, personnel, university system, and environmental factors. For the process of creating new companies, Rothaermel's et al. (2007) research identified such key issues as technology, faculty, technology, transfer center, owners and work teams of the new business, investors, relationship networks, and external conditions. Finally, an environmental context that includes networks of innovation implies the set of key issues that relate to the operation of the university in its external environment such as networks of innovation, science and technology parks, incubators, the geographical location of actors and agents of the university. Finally, the metamodel of Entrepreneurial University proposed by Aranha and Garcia (2014) tries to synthesize and expand the essential underlying concepts of entrepreneurial university under six dimensions: (i) entrepreneurial vision; (ii) committed strategic leadership; (iii) generation of innovative knowledge; (iv) capitalization of innovative knowledge; (v) economic, social and cultural development of the region; and (vi) an integrated entrepreneurial culture.

From the presented review and discussion, it is clear that this study should pay close attention to the theories of marketization, knowledge spill-over theory of entrepreneurship, resource –based view, and resource dependency theory, from the economic approach; attitude theory from socio-psychological, and institutional theory from the strategic management approaches. Besides these theories, all the models listed above are believed to have their own contributions. Hence, the following Chapter IV will use the ongoing theoretical discourse through the lens of an empirical review to bring light for the development of the conceptual model of the present study.

## **CHAPTER IV: EMPRICAL REVIEW AND CONCEPTUAL MODEL OF THE STUDY**

### **4.0 Overview**

This chapter deals on the related literature review. The major sub-topics treated under the section are as follows: the definitional and conceptual issues of entrepreneurial university; the reasons and indicators of university entrepreneurialism (specifically, the dimensions and constructs of entrepreneurial orientation and performance in universities), and the factors operating towards university-based entrepreneurialism (i.e., the roles of the internal and external entrepreneurial environments, also as of entrepreneurial orientation and performances). The overriding aim of

this chapter is to link the earlier theoretical discourse in Chapter III with the present empirical review in order to develop a conceptual model of this study.

#### **4.1 Entrepreneurialism in Universities – Definitional and Conceptual Issues**

Entrepreneurship is said to be imperative for economic development since it allows entrepreneurs create new businesses, which in turn generate jobs, intensify competition, and may even increase productivity through technological changes (Acs, 2008). It is at the heart of many policy questions related to science and technology, sustainability, poverty, employment and regional growth (European Commission, 2011). It is also a transforming process from an innovative idea to an enterprise, as well as from an enterprise to creation of values (Kauffman, 2008). Further, entrepreneurship has been discussed as the most effective economic power in the global economics and social history (Kuratko, 2005).

Authors define entrepreneurialism as a relatively elusive and contested concept. For instance, Shattock (2003, 2005) considers that the essence of entrepreneurialism is self directed autonomy, the capacity of universities to follow an innovative institutional agenda which is determined by the institution and not directed by the State. Of the components which can help to understand the meaning of entrepreneurial universities, according to Clark (2004), and Shattock (2005), include those that encourage innovative academic behaviour in teaching and research activities, attract diversified funding sources, promote partnerships with external regional, national or international bodies, respond to the needs of the society, adopt market-oriented strategies, stimulate external collaboration with industry, among other activities that imply, to some extent, a willingness to take risks.

Conceptually, two aspects of institutional entrepreneurialism have been identified, i.e., entrepreneurialism in a *broad-sense* and entrepreneurialism in a *strict-sense*. (i) entrepreneurialism in a *broad-sense* refers to institutions which can be able to adapt with flexibility to the changing environment and to respond fast to the needs of the society offering the services that this society is demanding. *Flexibility and rapid response* are the key words to define entrepreneurialism in this broad sense; (ii) entrepreneurialism in a *strict-sense*, on the other hand refers not only to institutions which are able to be flexible and to adapt rapidly to the environment but also to those that are able to transform the environment by establishing permanent links

mutually beneficial to society and to the business sector in particular. *A capacity for acting in the environment* is the additional key word for entrepreneurial universities in this strict sense (Mora & Vieira, 2009).

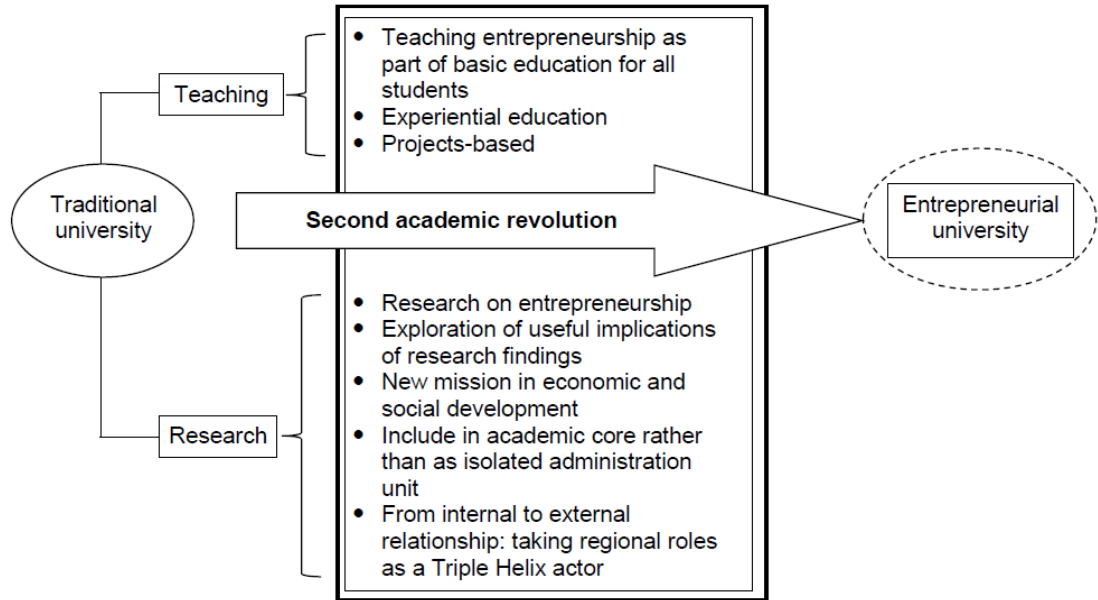
Therefore, an entrepreneurial university is one where entrepreneurship is a systematic approach, and where people feel committed to these goals (Nastase, 2012). Specifically, entrepreneurial university is interpreted by Rothaermel, et al. (2007:708) “*as a step in the natural evolution of a university system that emphasizes economic development in addition to the more traditional mandates of education and research.*” This implies that entrepreneurial university is an institution where the right alignment between the missions of teaching, research and economic development is built and crucially achieved (Etzkowitz, et al., 2000).

Historically, the missions of universities were marked by two key revolutionary and progressive transitions, from their sole and traditional role of conserving ancient knowledge during the 12<sup>th</sup> century, to their present posture. The *first academic revolution* was a transition from essentially teaching institutions to research universities, focused on producing new knowledge by incorporating scientific research as an organized activity in scientific societies and networks of individual investigators in the 19<sup>th</sup> and 20<sup>th</sup> centuries. During this stage, the university research goal was not only to publish research papers but also to advance understanding and become the source of innovations in the economy and society, including the starting point for the development of business ideas for new companies (Schulte, 2004). Hence, the outputs of this mission would be academic spin-offs, academic spinouts, and academic spillovers. The *second academic revolution* was the transition to institutions with an economic mission, next to teaching and research, which was able to generate new knowledge and stimulate employment and productivity growth in the late 20<sup>th</sup> and early 21<sup>st</sup> century (Etzkowitz, 2004). This time, the entrepreneurial mission appeared as a result of the collapse produced by the inevitable production of research results with practical implications and the external demand of greater utility from public funding (Etzkowitz, 2004). Therefore, academic revolutions within universities were resulted with different missions, according to Etzkowitz and Zhou (2008): the *teaching university* is based on education and dedication to the personnel market; the *research university*, engages in the production of knowledge, as well as teaching; while the *entrepreneurial university*, encompasses teaching, research and service to society. However, the entrepreneurial mission of universities is not meant

to weaken or undermine the missions of teaching and research instead to harness the synergetic relationships and leverage the university capabilities to full potential. Thus, the academic institutions which combine teaching, research and entrepreneurship in relative harmony are common emergent phenomena, with profound implications for the academic role and the place of the universities in society. In relation, Etzkowitz (2014) argued that the entrepreneurial university synthesizes previous academic dichotomies (ivory tower/polytechnic; research/teaching) in a coherent format integrating research, teaching and entrepreneurship; and revises the traditional academic roles to include entrepreneurial elements, like attracting external resources and taking part in economic and social developments. A variety of university systems, at a global level, attempt similar processes to undertake a third mission for economic and social developments. Of course, this is done with varying degrees of intensity, depending on local academic and cultural traditions, mediated by economic conditions. As a result, despite different national contexts, universities are currently viewed as potential engines of socio-economic developments, and various pathways are adhered towards the creation of entrepreneurial universities. In this regard, Etzkowitz (2014) summarizes key elements in the transition from a traditional to an entrepreneurial university, as presented in figure 4.1 below.

Figure 4.1

Key Elements in Transition from Traditional to Entrepreneurial University



Adopted from Etzkowitz (2014:225)

Moreover, Trajtenberg (2008) in Schramm (2008:7) indicated that “*entrepreneurial university*” has three possible meanings: first is the extent to which universities are structured, governed, be innovative, and adaptive to change in terms of their own institutions. Second is the extent to which universities can drive entrepreneurship in the broader economy by generating ideas, training entrepreneurs, and working with the business community; while the third sense of universities as entrepreneurial institutions is their ability to effect broader change throughout society at large. A useful working definition of the entrepreneurial higher education institution is provided by Gibb (2013):

Entrepreneurial higher education institutions are designed to empower staff and students to demonstrate enterprise, innovation and creativity in research, teaching and pursuit and use of knowledge across boundaries. They contribute effectively to the enhancement of learning in a societal environment characterised by high levels of uncertainty and complexity and they are dedicated to creating public value via a process of open engagement, mutual learning, discovery and exchange with all stakeholders in society - local, national and international.

Further, literature provides the attributes constituted with an entrepreneurial university. For instance, NESTA (2007) explained (i) top-down vision, strategy and leadership to champion enterprise and entrepreneurship education; (ii) clearly defined entrepreneurship learning objectives that drive the curriculum; (iii) robust internal and external networks, to create an infrastructure and systems that facilitate interaction and information flow to the disparate members of the cluster and stakeholders (NESTA, 2009); (iv) a culture of innovation, exhibiting university-level strategic thinking; open and quick decision-making; open communication and frankness; ability to take risks and learn from mistakes (Davies, 2001); (v) experiential learning and knowledge-transfer opportunities, which include such endeavors as internships, knowledge exchange schemes, faculty – industry exchange mechanisms and industry sabbatical opportunities as a way to cross-fertilize industry with academe (Meyers & Pruthi, 2011).

The cultural turn from the ‘administrated’ university to the ‘entrepreneurial university’ involves new opportunities to exploit new revenue sources for Higher Education Institutions (HEIs). The exhaustion of these new sources requires new ways of thinking at the HEIs’ administration used to be subordinate to the ministerial bureaucracy (Franz, 2013). In relation, Samuel and Hines (2006) argued that entrepreneurial university is to be independent rather than being dependent upon traditional funding sources; it seeks to chart its own course and generate more of its own resources. For the purpose, everyone in an entrepreneurial university, or nearly is expected, as argued by Ellin (2006), to pull his or her weight outside the classroom, library, and laboratory. Even if every professor, or even every program, may not have the potential to produce revenue, under entrepreneurship, there is an understanding that those who are not in a position to generate much money will engage in other ‘enhancement’ activities, generating good will, political support, community involvement, local economic development, and other non-revenue-enhancing goods.

In addition, Siegel and Wright (2015) indicated the key elements of the HEIs environment facilitating entrepreneurship namely: (a) the rise of property-based institutions to support technology transfer and entrepreneurship such as incubators/accelerators and science/technology/research parks; (b) substantial growth in the number of entrepreneurship courses and programs on campus; (c) the establishment and growth of entrepreneurship centers; (d) a rise in the number of “surrogate” entrepreneurs on campus to stimulate commercialization

and start-up creation; and (e) a rapid increase in alumni support of various aspects of entrepreneurial ecosystem, including alumni commercialization funds and student business plan competitions. Some of the main differences between traditional and entrepreneurial universities are explained by Cornwall and Perlman (1990) in Lovstal (2008:41) on the basis of strategy, environmental scanning, effectiveness and control, risk, organizational culture, decision making, people, and creativity. Thus, the traditional and entrepreneurial organizations and their management philosophies are displayed in Table 4.1 below.

Table 4.1

Traditional and Entrepreneurial Organizations and their Management Philosophies

Organizational	Traditional Organization.	Entrepreneurial Organization.
Strategy	Defensive, Protection of present niche.	Actively seeks out new venture.
Environmental scanning	Scan the external environment to identify threats.	Scan the internal and external environment to identify new opportunities.
Effectiveness and control	Primarily short-term focus.	Primarily long-term focus.
Risk	Scanning to be minimized.	Key to growth, adaptation and survival.
Organizational culture	Objective and analytical. Serves to protect status quo.	Affective component also important.
Structure and communication	Formal structure and communication channels Vertical Communication.	Informal. Horizontal Communication.
Decision making	Top management sets narrow parameters.	Top management establishes vision and mission.
People	Viewed as an abundant resource that is easily replaced.	Viewed as a key resource to be protected.
Creativity	Something to be tolerated.	Something to be fostered and developed.

Adopted from Cornwall and Perlman, 1990; cited in Lovstal, (2008:41)

Thus, the entrepreneurial university is that which has the characters of the entrepreneurial organization. It is argued by Ellin (2006) that the traditional university has perhaps already gone if not forgotten. There are two alternatives that might replace it, the entrepreneurial university (good) and the corporate university or the university ‘run like a business’ (bad). How do they differ? Corporations are ‘managed’ and typically run hierarchically and top-down, has on offer items that it expects to sell; its product line is driven by consumer demand, and employees are paid as their sales productivity warrants. At least up until now universities have not been organized and operated on the premises of maximizing profits, income, and prestige; or on the

quantities of students and faculty as the basic goals. Nevertheless, even if a college or university could not become a profit maximizing enterprise, it could adopt similar objectives to maximize revenues and to minimize the cost of any initiative it takes (Neill, 2006). Therefore, unlike the traditional university, the entrepreneurial university seeks out opportunities for revenue, ingratiates itself into the community, and cultivates leaders and power brokers towards entrepreneurialism.

According to Bok (2003) commercialization begins when someone in the university finds an opportunity to make money, when he or she is offered generous research funding in exchange of exclusive patent licensing rights; a chance to see distance courses for a profit; or a lucrative contract with an apparel manufacturer. Bok continued to argue that university officials naturally welcome the prospect of new resources that can help them fund a promising program or close a looming deficit. As a result, leaders of the entrepreneurial university eagerly investigate the opportunity and calculate the returns it will bring. Only with these benefits in mind, do they start to give serious thought to whether the proposal raises serious risks to academic values. By this time, the dominant urge is to figure out how to organize the venture so as to contain the dangers, allow it to go forward and start the money flowing.

#### **4.2 Reasons for University Entrepreneurialism**

Among different reasons behind the drive to rethink HEI missions and increase their role in fostering entrepreneurship, Potter (2008:318) mentioned three major developments: (i) the increasing importance of knowledge in economic growth: the increased needs of firms to compete through the exploitation of knowledge, the vectors of entrepreneurship and innovation, than was the case in the past; and the wish of governments to harness the potential of HEIs to contribute to entrepreneurship and innovation by generating and diffusing knowledge and building entrepreneurial human capital; (ii) new forms of innovation: which tends to see HEIs as involving interactions and notions of collective learning among many actors: customers, suppliers, basic researchers, applied researchers, investors and others; and (iii) increasing HEI competition for resources: through the development of national and international rankings which has intensified competition between universities (Ehrenberg, 2003); and put pressures up on universities to be “better” than their peers.

Further, Meyers and Pruthi (2011) provide the reasons that compel universities to embrace entrepreneurship as a core value namely: (a) helping universities put teeth into their innovation mission; (b) providing a way for universities to demonstrate to their stakeholders that they are adding value and creating an impact beyond their walls; (c) expanding commercialization revenues and fills the technology transfer pipeline beyond traditional technology-based ideas, inventions and discoveries; (d) creating a competitive advantage in attracting highly talented faculty and students; (e) offering students with the knowledge, skills and abilities they need to succeed, regardless of their career choice or place of employment; (f) meeting a market need ; and (g) fostering creative thinking about how universities should satisfy their multiple missions.

Moreover, at the heart of any attempt by HEIs to promote entrepreneurship is the question of universities and their relationship to the wider world outside those institutions. Goddard, et al. (1994); in Mitra (2008:28), enlightened that cultivating these relationships requires balancing the three key elements of the mission of universities: (i) generating new knowledge through research and intellectual capital; (ii) passing of this knowledge to future generations through teaching and the generation of human capital; and (iii) serving the needs of industry and commerce and the wider social community-the triple helix network and the generation of social capital. Further are mentioned components that enabled both policy makers and HEIs to recognize the cultural shift towards the significant role of HEIs in fostering entrepreneurship i.e. mass higher education and changes in the government's definition of the mission of HEIs; a related increase in the demand for skills and knowledge in all aspects of work, in response to increasing competition in the global economy; increasing rates of technological change and new ways of organizing the production and distribution of goods and services, including changing relationships between large and small firms; changes in the structure of government and a greater diversity of bodies having a stake in the governance of local territories; new patterns of urban and regional development arising from the greater mobility of capital and labor; and, the decline of old sectors and the emergence of new ones as in the creative and cultural industries.

Regarding the types of universities that deserve having an entrepreneurial mission, some argue that any university can be an entrepreneur no matter that it is a professional college, a teaching or research university; while some others are disputing that only a research university can go into this mode. For instance, according to Etzkowitz and Zhou (2008), those favoring the later position consider that only the research university is ideally qualified to become a fully fledged

entrepreneurial university and insist for it. Nevertheless, the authors argued that empirical case studies show about a nonlinear pathway from teaching to commercial activities to the development of research suggesting that universities in developing countries and regions do not have to wait to achieve research university status before contributing to regional development. As building an entrepreneurial university is a process, it may follow both paths simultaneously or even in reverse order as they build research and entrepreneurship capacities.

Nevertheless, it is also disputed by Slaughter & Rhoades (2004) that entrepreneurialism in higher education is being driven by society's growing expectations and intensifying competition between institutions. In particular, decreasing state subsidies caused HEIs to look elsewhere for revenue. Further, the increasing costs of goods and services over time due to inflation can be among the list, as the drivers to entrepreneurialism. This argument was advanced by Chan, et al. (2012) that in order to advocate for an entrepreneurial response on the part of universities, the following conditions would have to exist. First, the traditional sources of financial and public support for the university would have to be imperiled. The fact is that the university is no longer insulated from the market, but is subject to market pressures in a variety of ways. Second, the existing capacities of the universities to generate alternative resources would have to be inadequate. Third, there would need to be evidence of successful entrepreneurial strategies that have created new sources of revenue for universities. Related to all perspectives, Kenney and Patton (2011) suggest that today's universities need to develop entrepreneurial skills and traits. There is a need for perception of the importance of the market in forming a new philosophy for the future of higher education.

Universities often are required also to respond positively to politically inspired initiatives or to embark on courses of action that include taking risks for the sake of possible new sources of revenue that lie outside the normal range of university activities. Some of these risky new ventures may reasonably be consistent with traditional university values like the pursuit of basic research and community service or some may be otherwise; for instance, overemphasis on applied research and new business ventures that stretch the mission of the university beyond its normal reach. The fact is that universities and colleges are growing in size and scope and class sizes have changed over time; by which all are indicators of the increased demand for HEIs education (Neill, 2006:9).

Consequently, universities become increasingly involved in justifying their engagement for additional streams of funding to achieve their new ‘academic’ objectives (Etzkowitz, et al., 2008).

It has been highlighted that the traditional academic viewpoint dictates universities to have sole focus of teaching, learning and research and not involve in commercial activities (Chan, et al., 2012). This traditional academic thinking has been the result of continuous government funding (Buenstorf & Geissler 2012; Ismail and Ajagbe, 2013). In the public protected environment there may not be a pressing need for universities to change their previous academic philosophies; hence there may be reluctance on their part to enter into the marketplace (Kuratko, 2007; Browne, 2010; Ejermo, et al., 2011). Actually, universities are struggling to gain a competitive edge in students, faculty, programs, facilities, endowments, athletics, and in public support. There is also a need to increase the amount of external funding for all university tasks, e.g. curriculum reform toward competencies instead of “just” knowledge; there is a general expectation that universities contribute to the innovation system and processes on regional, national and international levels; and universities are also seen as the incubators for entrepreneurship and disruptive innovation (often referred to as commercializing research results (Laine, van der Sijde, Lähdeniemi & Tarkkanen, 2008). Therefore, increased competitions in the higher education system worldwide, where public and private sector universities strive for funding from both public and private sectors, as well as the emphasis of governments on universities to engage into research and development for knowledge and technology development, compelled universities to venture into entrepreneurial activities (Kenney & Patton, 2011; Bianchi, Cavaliere, Chiaroni, Frattini & Chiesa, 2011). These authors continued to argue that the competitive environment for universities is as intense as it has ever been, whether viewed in terms of the competition for students or for financial resources.

Above all, the growing impact of globalization and the rise of the knowledge-based economy have driven many nations to reform and reinvent their tertiary education sector. A recent review of tertiary education by the OECD (2008) found that globalization and development of knowledge-based economies have transformed the tertiary education landscape. The notions of “corporate universities”, “marketisation of higher education”, “the global business of education”, “academic capitalism” and “entrepreneurial universities” are becoming common themes in tertiary education development (Bok, 2003; Deem, 2001; Etzkowitz, 1998; Slaughter & Rhoades,

2004; Narayan, 2010). In addition, the global social change, economic volatility, environmental challenges and an evolving international knowledge-based economy require creative, innovative, entrepreneurial solutions in all spheres of life including universities. Towards that end, Meyers and Pruthi (2011) argued that both developed and developing economies need to encourage entrepreneurial activity, and to create roadmaps, strategies and action items for the creation of entrepreneurial universities. An entrepreneurial university is therefore, a natural incubator that, by adopting a coordinated strategy across critical activities of teaching, research and entrepreneurship tries to provide an adequate atmosphere in which the university community like the academics, students and staff can explore, evaluate and exploit ideas that could be transformed into social and economic entrepreneurial initiatives (Kirby, Guerrero & Urbano, 2011).

### **4.3. Some Key Components of University Entrepreneurialism**

The indicators of university entrepreneurialism may include several features. However, this study considers the entrepreneurial orientation, institutional performances and proximities to entrepreneurial university as the main manifestations of entrepreneurialism in universities.

#### **Entrepreneurial Orientation (EO)**

Entrepreneurial orientation refers to the processes, practices, and decision making activities that lead to new entry or new venture launch and support of business activities (Basile, 2012; in Shabani, 2013:1928). It has been originally proposed by Miller (1983), and involves an organization's willingness to innovate and rejuvenate its market offerings (innovativeness); to take risks by trying out new and uncertain products and services (risk taking); and to be more proactive than its competitors in seeking out new marketplace opportunities (proactiveness). Miller (1983), therefore, considers an entrepreneurial firm to be one that participates in product market innovation, undertakes risky ventures and develops proactive innovations ahead of competitors (Baker & Sinkula, 2009; Liu, Hou, Yang & Ding, 2011; Runyan, Droge & Swinney, 2008).

Entrepreneurial orientation in universities may be reflected in the way entrepreneurship is viewed within the university, the manner in which risk-taking is considered in performance reviews, or the means by which success is measured (Short, Ketchen, Shook & Ireland, 2010). As the primary

actors in the emergence of the entrepreneurial university are the university community (students, faculty, administration), and a key factor in the fulfillment of the entrepreneurial university's mission, the nature of these members' attitudes toward entrepreneurship is important. The reason is that having an entrepreneurial spirit encourages creativity and innovation and builds empowerment into the university. Faculty and staff begin to consider that they have a responsibility to create resources, not just to claim the existing resources of the university. Therefore, as to the explanations of Petrica & Salihovic (2008), high integration of all university elements around the value dimensions of entrepreneurship (proactivity, innovativeness, readiness to assume risk, autonomy and competitive aggressiveness) is imperative. Moreover, entrepreneurial/ enterprising behavior relates, according to Petrica & Salihovic (2008) with the following aspect: (i) proactive activity towards its environment, in terms of prediction of possible changes in trends, demand, and adjustment of own activities accordingly; (ii) continuous thinking about innovating products (educational programs, research topics...), processes (methods of teaching, methods of research, and methods of transfer of knowledge to the environment...), about new organizational solutions, about new markets, etc.; and (iii) tendency to take risks which implies making decisions and operate in conditions of great uncertainty, when it is impossible to gather all the necessary information, required for a safe outcome.

Kenney and Patton (2011) also suggest that today's universities need to develop entrepreneurial skills and traits. Hence, there is a need for perception of the importance of the market in forming a new philosophy for the future of higher education with respects to traditional academic principles (Kenney & Patton, 2011; Litan, Mitchell & Reedy, 2007; Rashid, Ismail, & Akhtar, 2015). Further, it represents strategy making processes that provide an organization with a basis for entrepreneurial decisions and actions (Rauch & Wiklund, 2009). In today's dynamic, fast-changing and intense worldwide competitive environment, the importance of entrepreneurial orientation is manifested in its rapid diffusion throughout the strategy literature (Carton, 2004; and Rauch, et al., 2009).

Consequently, entrepreneurial orientation has been noted as a key ingredient for organizational success and has been found to lead to higher performance (Wiklund & Shepherd, 2005). It is further argued that firms that possess higher levels of entrepreneurial orientation will perform better than those with lower levels of entrepreneurial orientation (Rauch, et al., 2009). Higher

levels of entrepreneurial orientation allow firms to have the ability to identify and seize opportunities in a way that differentiates them from non-entrepreneurial firms. Strategies can provide evidence about the entrepreneurial orientations and intentions of universities. For creating an entrepreneurial university, it is critical for universities whether entrepreneurship fit the university's vision and strategy and whether links to the community/ industry exist (Seeling, 2010; Yildirim & Askun , 2012: 955). Besides, it is argued that effective entrepreneurial behavior is necessary to prosper in competitive environments (Lumpkin and Dess, 1996). Within this context entrepreneurship, plays a pivotal role in facilitating links between research and industry. Using the "basic uni-dimensional strategic orientation" concept of Covin and Slevin's (1989), firm's behavior can be categorized along a continuum that ranges from highly conservative to highly entrepreneurial behavior in which a firm's position is referred to as its entrepreneurial orientation (Senyard, et al., 2008).

A great number of studies that exist to date suggest that entrepreneurial orientation can be characterized by several dimensions in various combinations. The operationalization proposed by Lumpkin and Dess (1996) seems to provide a clear understanding of such multidimensional construct and it is thus able to underlie nearly all entrepreneurial processes. Lumpkin and Dess (1996) suggest that "*the key dimensions that characterize an entrepreneurial orientation include a propensity to act autonomously, a willingness to innovate and take risks, and a tendency to be aggressive toward competitors and proactive relative to marketplace opportunities*". The usage of entrepreneurial orientation measures using such constructs by researchers have been verified in various cultural contexts and confirmed the validity of both unidimensional (Arbaugh, Cox & Camp, 2009) and multidimensional (Kreiser, Marino & Weaver, 2002) approaches. Thus, even if the authors consider each dimension as crucial to an entrepreneurial orientation, they provide evidence that these dimensions can vary independently in any given context.

### **Autonomy**

The concept autonomy may be applied both to the individual person and to a group or an institution. The idea of university autonomy was developed from the theory of institutional autonomy by Feinberg (1989), which states that if institutions are allowed to carry out the purpose for which they are established without external forces, manipulation, direct control, or imposition

of controlling measures, they would be capable of unleashing their potentials, and work towards optimal achievement of set goals. The term university autonomy, according to Ajayi & Awe (2010) refers to the condition, which permits an institution of higher learning/education to govern itself without external interference. In the present situation, university understanding of institutional autonomy means that the university enjoys freedom from government regulations especially in terms of the internal organization of the university, its governance, the funding arrangement to generate of income for its sustainability, the recruitment of its staff, conditions of study and finally, the freedom to conduct teaching, research and publications. The relationship between academic freedom and autonomy is that it is complimentary as there can be no academic freedom without institutional autonomy. Institutional autonomy has been regarded essentially as academic freedom. Academic freedom is concerned with the individual freedom of academic staff to impart knowledge unhindered and the freedom for students to choose what they wish to study.

In order for the autonomy dimension to be well-built, as it was argued by Lee and Peterson (2000), institutions must operate within environments that promote entrepreneurs to act independently and to seek opportunities in the absence of societal constraints because, according to Lumpkin and Dess (1996), autonomy is an “*independent spirit*” considered to be a key dimension of entrepreneurial orientation and a fundamental impetus for new entry; and further, Callaghan & Venter’s (2011:31) suggestion is to be noted that “*A tendency toward independent and autonomous action*” is a key component of an entrepreneurial orientation.

Basically, three dimensions of autonomy are identified in literature i.e., procedural autonomy, organic autonomy and substantive autonomy. *Substantive autonomy*, is the right of the university to determine its own program of study, and indeed set goals; *procedural autonomy*, is the right of a university to determine the means in which it devotes itself to fulfill the areas of priorities which was agreed upon and consequently assigned to it as part of national policy; and *organic autonomy*, is given the mandate to determine its academic organization. In other words, autonomous university is given the power to determine its constitutional form of academic arrangement (Okaii & Worluii, 2014).

The reason behind institutional autonomy in universities is that, by having control over their resources and facilities, they will be in a better position to meet the changing demands of society and the market. According to Estermann & Pruvot (2011), the institution's capacity to mobilize, manage and use resources efficiently is related to their financial autonomy. On the other hand, human resources autonomy is determined by the capacity and responsibility of the institution to recruit staff and set salaries, usually directly related to the legal status of staff (whether civil servant or employee of the university itself). Further, the academic autonomy is related to the degree to which an institution is at liberty of directing its own education and research strategy, for example, in its choice in specialization in research, in its focus on teaching of specific topics and in targeting of specific populations for enrolment. It also includes the ability of the institution to manage its academic profile and admission policy (including qualifications and size of student enrolment).

Consequently, the worry for university autonomy and academic freedom is at the level of interference from government in the internal governance of the university in the performance of its traditional functions (Ajayi & Awe, 2010; Okaii & Worluii, 2014). In order to effectively generate and disseminate knowledge and information, universities must enjoy a great measure of autonomy to run their internal affairs and decide on what research to do, faculties (lecturers) should be able to decide not only what research to undertake, but also what ideas to disseminate. In addition, as it was argued by Petrica and Salihovic (2008) that financial independence of a university creates a sense of controlling one's own destiny, because it allows the university to launch and implement projects according to its own wishes and priorities; prevents unwanted commercialization of university services; and it provides the freedom to choose projects.

Responsibility and autonomy of a university are said to be value components and two inseparable characteristics of entrepreneurial university. In this context, Petrika (2011) stated that university obtains the right to autonomy in performing of its activity while responsible behavior of the university implies caring for the needs of the environment and the desire to implement projects which will contribute to solving research and educational problems in the environment. The author further reveals that university autonomy can be observed through gradation for example, complete freedom is important in the choice of research approach and expression of positions based on conducted research, and in forming educational programs that meet future needs of the

environment for specific competencies; while autonomy can be relatively limited by university's responsibility towards the environment namely, in choice of research topics or selection of the offer of educational programs.

Debackere, Bart & Michael (1996) argued for a proper balance between autonomy and control to universities as these institutions are believed to be autonomous created according to the national legislation in the country. Either public or private, universities have internal documents to apply such as legislation, guidelines regarding the research activity, different procedures for the processes that take place in the academic area and the like. University is expected to be an autonomous institution which produce and transmit culture through research and education; an independent unit from a moral and intellectual point of view, not affected by political or economic reasons; and a free institution meant to develop research and education for future generations in order to allow them to respect the equilibrium requirements of natural environment and of life. According to Altbach and Salmi (2011), institutions that have complete autonomy are not constrained by externally imposed standards and can, as a result, manage their financial or human resources with more flexibility and agility in order to respond to changes in the global marketplace for education.

### **Innovativeness**

The innovation dimension reflects the firm's willingness to depart from existing practices and technologies, and open its organizational culture to new ideas and combinations (Lumpkin and Dess 1996). It is *"the tendency of a firm to engage in and support new ideas, novelty, experimentation and creative processes that may result in new products, services or technological processes"* Lumpkin and Dess (1996:142). There are multiple modes of innovation, e.g.: product, process, organizational or business model innovations (Freiling & Schelhowe 2014). Thus, as proposed by Covin and Miles (1999) innovation is the single dimension that has to be employed within all entrepreneurial firms. To categorize the term, one can think of product-market innovation on the one side of the spectrum, and technological innovation on the other (Miller, 1983; Miller and Friesen, 1982).

According to Minniti and Levesque, (2010) in Estrin, et al. (2014:3), innovation may take simpler forms often consisting merely 'filling in a market niche that has not been exploited yet' via

replication of technologies developed elsewhere, expending in R&D and commercialization of technological discoveries by entrepreneurs; and innovating through creative imitation for technological upgrading and growth . Such R & D based innovations and creative imitations are theorized to be beneficial for economic growth (Audretsch & Keilbach, 2007; Acs, et al., 2013; Estrin, et al., 2014:3).

There is a high degree of consensus in considering innovativeness as a central factor to characterize entrepreneurship and a key component of firm competitiveness and success in turbulent and fast changing environments, as it represents a fundamental way for firms to pursue new opportunities (Garofano & Guerriera, 2009). By the same token, given the current competitive environment, universities should be highly motivated to pursue innovations. Effective innovations help to create a competitive advantage by creating new value for customers (Mizik and Jacobson, 2003). They need to accept the change and to create the new in education and research as long as it is for a better position on the market. Innovativeness is also linked to the ability to change things. As universities act on an interesting market where competition is increasing year by year, they have to be assisted towards several changes. Sellamna & Amare (2014) observed that, innovation accelerators in universities and research and development organizations show that these three conditions are essential for innovation: (i) funding; (ii) human, physical and administrative capacity; and (iii) effective collaboration.

Innovativeness can be measured through several methods, such as the level of financial and human resources dedicated to research and development, the number of new product or service introductions in a certain time lapse, the frequency of changes in services or product lines. Product innovativeness, that is the aspect many researchers are chiefly concerned with, can be measured by using different dimensions that capture both the firm's and customer's perspectives (Garofano & Guerriera, 2009). For instance, Avlonitis and Salavou (2007) assessed product innovativeness and its level of radicalness by considering three dimensions: (i) the product newness to customers; (ii) the innovativeness level of a new product for the market in terms of characteristics as compared to similar products; and (iii) the level of product newness to the firm that produces it.

It is also argued that there are four main outcomes of innovation in higher education (Brennan, et al., 2014): (i) the vision behind and the use of new technologies represent enablers of innovative

practices, rather than innovations per se; (ii) the use of new technologies appears to be a facilitator of the transition from a department-centered vision to a student-centered vision of education; (iii) innovation often stimulates an accelerated development of partnerships between higher education institutions and other organizations, especially businesses; and (iv) innovations in higher education illustrate well two general key aspects of the innovation process: ‘doing new things’ and ‘doing existing things better’.

### **Risk Taking**

The dimension of risk-taking has been conceptualized more broadly by Rauch et al. (2009:763) in that “*risk-taking involves taking bold actions by venturing into the unknown, borrowing heavily, and/or committing significant resources to ventures in uncertain environments*”. Earlier, Miller and Friesen (1978: 923) were the ones who define risk-taking as “*the degree to which managers are willing to make large and risky resource commitments – i.e., those which have a reasonable chance of costly failures.*” This could be related not only to establishment of enterprises but also to the core missions of the universities like teaching, research and community service. Further, Dess and Lumpkin (2005: 152) argued that “*Risk taking refers to a firm’s willingness to seize a venture opportunity even though it does not know whether the venture will be successful and to act boldly without knowing the consequences*”. Three typology of risk taking constructs of the entrepreneurial orientation were identified by Baird and Thomas’ (1985) these are: (i) venturing into the unknown; (ii) committing a relatively large portion of assets; and (iii) borrowing heavily. Correspondingly, as universities are encountered with different uncertain environments, they have to make decisions in different risk conditions.

According to the arguments of Williams (2009:20), a university is said to be entrepreneurial in the sense that its senior management undertakes large-scale and possibly risky investments on behalf of the institution as a whole. Whether it is able to undertake such ventures depends on the legal and administrative setting, the nature of the senior management team, the academic culture of the university, and its financial situation. Otherwise, a university is unlikely to be entrepreneurial if it is legally prevented from being so, if the senior management team is more concerned with stability than with testing the boundaries, if the academic culture values traditional mainstream teaching and research above all else, or if there is insufficient financial security for

major new investments that inevitably carry an element of risk. The types of risks that colleges and universities are to pursue were identified by Anderson (1990) which include: *business risk*, which puts money at risk since new ventures can lose money; *management risk*, that refers to the idea that commercial venture outcomes are easy to measure in terms of profit or loss; and *image risk*, related to an entrepreneurial orientation which may alienate supporters and erode support for the culture and goals of the institution (in Smith, 2009:34).

Therefore, the academic management for the entrepreneurial university shall be a risk management. The main factors of risk for universities can include: internal and external competition which may be expressed by organizing same activities much better than other universities. Thus, an entrepreneurial university is expected to be an active one which is able to admit the gap between itself and other universities in order to adopt measures to improve its own activity. In addition, competitions in the area of research project funds, in the professors' selection, and in the acquisition processes of resources can be cited.

### **Proactiveness**

According to Covin and Slevin (1986), proactiveness “*refers to the extent to which organizations attempt to lead rather than follow competitors in such key business areas as the introduction of new products or services, operating technologies, and administrative techniques*”. It also refers to the firm's ability to anticipate future consumer problems and needs and to make necessary changes ahead of competitors (Dess and Lumpkin, 2005). In order to achieve a competitive advantage in the present scenario, characterized by rapid changes and intense competition, satisfying customers is not enough; indeed, it is necessary to anticipate their future needs and acting on them (Garofano & Guerriera, 2009:83).

The initiative to anticipate and pursue opportunities is an important ingredient to entrepreneurship revealed by proactiveness. It refers to the processes aimed at anticipating and acting on future needs (Venkataraman, 1989). It has been identified as a key element in the entrepreneurial process. Moreover, Miller and Friesen (1978: 923) associated proactiveness with shaping the environment by introducing new products, technologies, or administrative techniques. In addition, Lumpkin and Dess (1996) were of the opinion that there is a profound distinction between proactiveness and competitiveness. Whilst Covin and Slevin (1989) often use these terms

interchangeably, Lumpkin and Dess (1996:147) feel that proactiveness refers to how a firm relates to market opportunities in the process of new entry. It does so by seizing initiative and acting opportunistically in order to 'shape the environment,' that is, to influence trends, perhaps, even create demands. Competitive aggressiveness, in contrast, refers to how firms relate to competitors, that is, how firms respond to trends and demand that already exists.

Furthermore, Wiklund et al. (2009: 763) argued that proactiveness is "*an opportunity-seeking, forward-looking perspective characterized by the introduction of new products and services ahead of the competitions and acting in anticipation of future demand*". In relation to universities, it can be said that proactiveness allows them to create strategies for a durable positioning in relation to competition. Either the client is the student or a company, the university with an entrepreneurial behavior acts in order to get the success through client's satisfaction.

### **Competitiveness Aggressiveness**

Competitiveness relates to "*a firm's propensity to directly and intensely challenge its competitors to achieve entry or improve position, that is to outperform industry rivals in the marketplace*" (Lumpkin and Dess , 1996:148). It is characterized by "*responsiveness, which may take the form of head-to-head confrontation... or reactive.*" Amongst all the dimensions identified by Lumpkin and Dess (1996), competitiveness is clearly the one which is most related to profit-seeking companies operation in a free capitalist marketplace. Several forms of competitive aggressiveness have been empirically investigated; specifically, activities strictly aimed at beating competitors may include, for instance, setting very high market-share goals and doing strong actions to achieve them, such as cutting prices and sacrificing profits, or investing a considerable part of incomes on marketing, product service or quality (Garofano & Guerriera, 2009:85).

Competitive aggressiveness is the intensity of a firm's efforts to outperform industry rivals, characterized by a combative posture and a forceful response to competitor's actions (Lumpkin & Dess, 2001). However, an entrepreneurial university must also play a role in competitive aggressiveness. According to Garofano and Guerriera (2009), characterized by a high level of responsiveness, competitive aggressiveness may also reflect the adoption of unconventional competition methods. This means that universities' offer must become visible for much more competitive than the competitors' offer namely, better organized processes; more quality in

teaching; more prestige added to the diploma; more attractiveness for the study programs; more famous professors; better known visiting professors, and so on. Hence, entrepreneurial universities have to behave like a company which has to manage itself in a competitive market.

#### **4.4 Institutional Performances and Proximities to Entrepreneurial University**

There is no dispute that one of the core purposes of both entrepreneurship and strategic management theory and research is the improvement of organizational performance (Mthanti, 2012). Nevertheless, searching for the performances of public universities needs to consider their commonalities and differences from corporate firms. Consequently, it was stated by Daumard (2001) that firms and public universities are organizations with numerous points in common, in that they both have a legal and social identity, assets, ownership rights and obligations; they use human capital to produce goods or services that meet a demand; must do with scarce resources; they use quite sophisticated techniques with regard to management and measuring output and results; and they have their own pattern of work organization, with in-house procedures and hierarchies.

However, the differences between public universities and firms outweigh their similarities. The areas of differences are related to performance criteria, power mechanisms, staff, guaranteed perpetuity, and outlook. Of which, performance criteria are clear in private firms, where medium-term profitability is the main test, otherwise firms could well disappear. The same does not apply to state-funded universities. It becomes rather difficult about how to measure performance, and on what exactly it means for a university to fulfill its mission. This also leads to the question of each institution's objectives. In firms, an economic objective enables the management to determine and impose some unity, a coherent policy approach ensuring that the firm's all constituent parts pull together towards a set of common goals. Consequently, no member of the firm would dream of challenging those objectives, unless willing to run a great personal risk. However, similar application is not expected from universities (Daumard, 2001). As a result, there has been no consistency in the measures used to represent the construct of overall organizational performance in strategic management or entrepreneurship research (Carton, 2004). Rather, there continues to be no conclusive research that has identified a "best" measure of overall

organizational performance, nor has a measurement model that accurately represents the construct yet been developed (Santos, 2012).

Performance could be measured against an organization's *raison d'être* i.e., profit, development of science, public service, and so on. Most of such measures can best apply to firms as they cannot afford to neglect their markets. Since public universities do not spontaneously think in terms of markets or they do not enjoy a monopoly, either in teaching or research, such measures are difficult to apply. However, in all cases, measuring and judging good or bad performance is based on a kind of "*performance culture*", centered on resource optimization, cost control, monitoring, and the comparison of results against projections. Consequently, universities can use the contemporary performance measurement which comprises either the use of financial or non-financial ones linked to the organization's business strategy or both of them as well (Santos, 2009).

In this study, the literature focuses on the entrepreneurial performances of universities; the proximity of performances to entrepreneurialism, as seen along the spectrum of Traditional-Entrepreneurial Paradigm; and on resource mobilization and diversification performances.

#### **4.5 Entrepreneurial Performance of Universities**

The performance of universities has to be considered from the heterogeneous plurality of organizational and managing activities aiming at social, economic and competitive value and meeting education and knowledge enhancement needs. According to Cosenz (2013), performance in universities has to be conceived by three main functions: *didactics*, *research* and *administration*. Each of the parameters actually implies the attainment of different expected results namely, *education* performance include training quality, teaching effectiveness and social impact; *research* aims at "knowledge" development, in terms of research quality, innovation with its double meaning of originality and validity of scientific-applicative outcomes, effectiveness of the relation between employed resources and obtained results, and productivity; and *administration* focuses on efficient running of "academic" resources, including the financial ones, and supports the first two management areas, particularly by paying attention on cost efficiency. Nevertheless, it appears necessary to distinguish between competitive market performance and community-based social performance. Cosenz (2013) argues that the former

considers university as an “entrepreneurial system” performing within a competitive context and, therefore, it compares results among different universities in order to let HE sector endure in the market and increase the resources. On the other hand, the later corresponds to the benefit that a university is able to offer to its social groups, namely welfare, progress and development of the entire social system. Often, by looking at the goals of universities, competitive performance coincides with social performance. Therefore, the above distinction seems rather blurred.

Of the possibilities to examine the entrepreneurial performances of universities, the use of University Score Card was suggested by National Centre for Entrepreneurship in Education (2013). The key areas proposed to explore the entrepreneurial potential of universities include for example, research, knowledge transfer and exchange; stakeholder relationship and partnership development at the local, regional and national level; internationalization processes; enterprise and entrepreneurship pedagogy and knowledge organization across the university; and governance, strategy, organization design and leadership at all levels, are found to be relevant.

### **Knowledge Transfer and Exchange**

The formal and informal transfer of new discoveries and innovations resulting from research (usually scientific) conducted at universities to the commercial and non-commercial sector for the benefit of public is said to be knowledge transfer (Lee, 1996; Shane, 2004). Over the past few decades, there has been considerable public policy emphasis on university processes of knowledge transfer in both developed and developing economies (Kwiek, 2005). However, the term ‘knowledge transfer’ has been supplemented, and sometimes replaced by, ‘knowledge exchange’ in recognition of the fact that universities do not hold a monopoly on knowledge and indeed have much to learn from sources external to the university (Senges, 2007). In fact, the term “technology transfer” has been overtaken by the notion of “knowledge transfer” in the modern HEI-industry lexicography, as to Mitra (2008), because of the growing recognition of the forms of knowledge that are both explicit (i.e. codified forms in manuals and texts) and tacit (i.e. uncodified forms) residing only in an individual or a homogeneous collective of people in a given environment.

Kim (2008:3-4) described that universities’ entrepreneurial activities can be divided into two types between indirect and direct commercialization of knowledge. The indirect

commercialization of knowledge is characterized by universities' close relationship with industry, including contractual consulting *for* industry, conducting projects ordered *by* industry, and research collaboration *with* industry; whereas the direct commercialization of knowledge is characterized by active pursuit of profit and managerial engagement *in* industry. In both direct and indirect forms of commercialization, universities are expected to collaborate with industry to facilitate transfer of technology as a means to drive the development of both local and national economies (Cohen, et al., 2002; OECD, 2002; Narayan, 2010). Some of the reasons attributed to the increasing importance of technology transfer as part of the mission of universities include: (i) the transformation of industry's technology base to complex and diverse forms requiring access to external sources of knowledge and technology; (ii) the growing importance of SMEs, especially in high technology industries, against the decline in employment in branches of large firms; and (iii) increasing interest in getting enhanced industrial appropriation of knowledge produced by universities using public funds (Goddard, et al., 1994). To this list, Mitra (2008) add the need for HEIs to seek revenues from diverse funding sources, as public funding for both research and teaching has shrunk over the years.

Furthermore, findings indicate that research outputs and entrepreneurial activities could be reinforced each other at least in some fields. For instance, in terms of teaching, Lee and Rhoads (2004) show that professors with consulting activities tend to be more committed to teaching. They suggest that professors engaged in consulting might gain some insights into instruction while they deal with real world issues. However, the collaborations with industry for proper knowledge transfer shall include transparent relationship management models, facilitated interaction with the business community (entry gate), and the implementation of customer-oriented management (Kim, 2008). Perhaps, the challenge for universities is to move away from "*isolated islands of activity*" towards a university-wide, inclusive approach with their partners. These types of activities also require that universities ensure consistency between their core mission and the external funds being pursued (Williams, 2009).

Moreover, the entrepreneurial university seeks not only to produce research papers but also to apply researches actively to challenges in the economy and wider society, serving as a source of innovations that may in turn be starting points for the development of new companies, and to be engaged in consultative activities and trainings to industries. As argued by Argote and Ingram

(2000), the necessary knowledge and technology transfer within an entrepreneurial society occurs when the experiences of actors in the economy influence the behavior and activities of others through services such as both a knowledge producer and a disseminating organization to wider society. To this end, entrepreneurial universities engage in a wide range of networks and relationships, with both private and public organizations, which serve as umbrellas for collaboration and co-operation (Inzelt, 2004). These interactions are both manifestations and key components of the university's strategic responses to the entrepreneurial imperative in order to be a reference of technology transfer in a global economy.

Thus, moving towards an entrepreneurial university through knowledge transfer engagements is possible, according to the action plan proposed by Henrekson and Rosenberg (2000), in Meyers and Pruthi (2011) by developing links with industry. The fact is that developing a university – industry interface can take many forms such as research projects sponsored by an outside agent; set up of firms for commercial exploitation of research; financial and advisory aid to research-based firms and to individual researchers; and facilitation of the patenting, licensing or direct commercial exploitation of knowledge and research results originating from universities. By doing so, various triple helix models can be developed and the conscious involvement of the three parties: universities, industry and government reinforced. In this context, Etzkowitz and Zhou (2008) described that in a university-pushed model, entrepreneurial universities jump-start regional innovation. In a government-pulled model, entrepreneurial universities help the development of existing industries and creation of new industries at the request of government. In the corporate-led model, such universities typically collaborate with industry in product and process innovation. Innovation organizing and initiation capacities, among the triple helix are the basis for projecting regional strategies, with different starting points due to unbalanced development.

### **Internationalization**

Higher education has become more deregulated, diverse in terms of its sources of income, privatized, and market oriented. The entrepreneurial university of today feels an internal need to become increasingly international. The academic rationales, in addition to the traditional search for universal knowledge and understanding, have become increasingly modernized (De Wit,

2000). Since the early 1980s, increasing attention has been paid to internationalization in higher education (Knight, 2003). It is a form of response from university toward the impact of globalization, which is seen as “*the widening, deepening and speeding up of worldwide interconnectedness*” (Held, McGrew, Goldblat & Perraton, 1999). Thus, internationalization have emerged in the last two or three decades, especially given the diminishing role of nation states, the fluidity of national borders, the increased demand for access to higher education in the modern knowledge economy/society, and the increased entrepreneurial activities by higher education institutions due to fiscal pressures emanating from cuts in public spending on higher education. These forms of international education include distance education, borderless education, trans-national education, virtual universities, satellite campuses, franchises, and off-shore and twinning programs (De Wit, 2001; Knight, 2006).

Internationalization is an effect of globalization. However, the concepts of globalization and internationalization as they exist in higher education, are not synonymous or categorically definable, but are interlinked. Broadly, globalization refers to a wider process of increased economic activities between nations, which necessitates greater homogenization of fundamental aspects of life across different countries and the erosion of borders; while internationalization is an important strategic and organizational means of responding to and, absorbing the effects of globalization. In the higher education field, internationalization should be understood as a process which introduces new dimensions to and improves institutional quality and delivery of education, rather than a specific, linear goal (De Wit, 2011). This aligns with the process based, and widely accepted, definition of internationalization proposed by Knight (2008):

...the process of integrating an international dimension into the research, teaching and services function of higher education, subsequently updated to ‘the process of integrating an international, intercultural or global dimension into the purpose, functions or delivery of post-secondary education’ (cited in Brennan, et al., 2014:71).

This means that internationalization includes integration of global and intercultural dimension into delivery, functions, and purpose of education. Basically, according to the explanations of Gibb, et al. (2013), commitment placed on international strategy reflects entrepreneurial

objectives. This indicates that internationalization is a crucial component of an entrepreneurial strategy of a university. However, it is argued by Krabel, Siegel & Slavtchev (2012) that, though it is not possible for an institution to be entrepreneurial without being international, it can be international without being entrepreneurial. As a result, internationalization is widely practiced today by the majority of higher education institutions worldwide. There is a general consensus that internationalization can offer, when part of a broader strategy, valuable benefits to students, faculty and the institution as a whole. It can spur on strategic thinking leading to innovation in modernizing pedagogy, stimulate greater student and faculty collaboration, and can open up new avenues for research collaboration.

The new world of higher education is characterized by competition for prestige, talent and resources on both national and global scales. National and international rankings are driving some universities to prioritize policies and practices that help them rise in the rankings. At many institutions, internationalization is now part of a strategy to enhance prestige, global competitiveness and revenue (IAU, 2012). Thus, the prevailing context for higher education internationalization requires all institutions to revisit and affirm internationalization's underlying values, principles and goals, including but not limited to: intercultural learning; inter-institutional cooperation; mutual benefit; solidarity; mutual respect; and fair partnership. Internationalization also requires an active, concerted effort to ensure that institutional practices and programs successfully balance academic, financial, prestige and other goals. It requires institutions everywhere to act as responsible global citizens, committed to help shape a global system of higher education that values academic integrity, quality, equitable access, and reciprocity (IAU, 2012).

There are two interdependent pillars of internationalization—at home or campus-based and abroad/cross border education. The “*internationalization at home*” (denoting activities such as internationalizing the curriculum, pedagogy, or co-curriculum; and looking to international students as a resource); and including activities that help students to develop an international awareness and intercultural skills. So, it is much more curriculum oriented which prepare students to be active in a much more globalized world. Activities that fall under this at-home dimension are for example, curriculum and programs, teaching and learning processes, extra-curricular activities, liaison with local cultural/ethnic groups, and research and scholarly activities (Olson,

et al., 2006; Knight, 2008). On the other hand, “*internationalization abroad*” (denoting student and faculty mobility programs, delivery of programs abroad, and international projects), includes all forms of education across borders for instance, the mobility of students and faculty, and mobility of projects, programs and providers. These components should not be considered mutually exclusive, but rather intertwined within policies and programs (Olson, et al., 2006; Knight, 2008). It is the synergy among the various elements—at home and abroad—that promotes comprehensive internationalization,

According to the explanations by OECD (2012), a widely practiced approach to internationalization, are partnerships with higher education institutions abroad that facilitate staff and student exchanges, collaboration in research and development, international joint degree programs and the opening of campuses abroad. Additionally, the growing practices to the list are opening up of wider links through distance learning approaches, globalization of curricula, building stronger linkages with local international businesses and closer engagement with alumni abroad. Further, the large-scale form of institutional-level entrepreneurial activity is the establishment of partnerships, using the cooperation model, with higher education institutions in other countries, which enable students to benefit from teaching and qualifications. The choice can result, according to Williams (2009), from a careful analysis of the assets of the university but also from the opportunities offered by its local and regional environment, including its socio-economic characteristics, demographic trends, etc. In this regard, universities can be proactive in generating their own corporate networks by contributing to the development of start-up companies. These support international mobility of the students and staff; allow local students to participate in international activities, and may include overseas internship, scholarships, and exchange schemes (Gibb, Haskins, & Robertson, 2013).

The other key areas in pursuing successful international processes also include overseas campus development and organizing to build commitment. The main drivers to establishing campuses overseas according to Reichart & Wachter (2000), Green (2005), and AUCC (2009) are as follows: revenue through enhanced student numbers; staff and student mobility; creating visibility and gaining prestige; anticipating competition; opportunities for research and development of new curriculum; staff development; and securing a student flow to the home base for higher degrees. In addition, choosing quality partnerships and sustainable commitment; careful assessment of the

regulatory environment; quality control; recruitment of quality local staff; and sponsorship on the basis of a sound revenue-generating business plan, can be cited.

Higher education institutions can internationalize through their activities in teaching, research and knowledge exchange, and through their staff and students. Thus, becoming a truly internationalized institution can be built on all of the mentioned circumstances. For the purpose, internationalization strategies should not fail to recognize faculties and should extend to including them in plans because, recruiting entrepreneurial staff at an international level enhances an international outlook, if recruitment ensures and matches to the needs of the university. In relation, Guerrero & Urbano (2012) stated that faculty can be motivated by various issues such as intercultural experiences and intellectual expansion. Moreover, Seitz (2007); argued for building of truly international faculty; developing of appropriate support services for international students; seeking out and managing dedicated new income streams; creating discrete budgets and contract formats for overseas work; maximizing the opportunity for new worldwide alumni relationships; developing new forms of distance education and support; and balancing appropriate central, departmental and individual initiatives. Above all, creating new internationalization systems where appropriate for: accreditation and assessment, staff promotion and reward systems for international efforts, identification and support of champions, increased responsibilities to deans and departmental heads; and maximizing the potential for enhancing domestic student international experience in anticipation of their operating in future in a global employment market places.

The process of internationalization in higher education, however, brings uncertainty and complexity beside opportunities and threats. It demands active responses involving such important concerns as for instance, use of key entrepreneurial attributes such as risk and initiative taking; finding and grasping of new opportunities; building of new trust based networks and relationships; holistic project management; flexible strategic planning; and entrepreneurial leadership. The internationalization process is also credited in providing new rewards in terms of income, reputation, research opportunity, new partnerships and enhanced cultural understanding. Moreover, its operational portfolio includes among others, new degrees; franchising of existing degrees; international student inflows; new campus initiatives; student exchanges; linguistic programs; faculty mobility and exchanges; research partnerships; and company linkages (Knight,

2003; Shattock, 2009). Nevertheless, documented barriers to internationalization may include the lack of coordination and available information, constraints due to limited funding, disincentives to participation in international initiatives, lack of staff to facilitate the process (Dewey & Duff, 2009; cited in Brennan, et al., 2014:73).

### **Entrepreneurship Education**

Governments in both developed and developing countries are promoting more and more entrepreneurship as the engine of economic development and extensively acknowledge its critical role in wealth as well as job creation (Guerrero & Urbano, 2014). Entrepreneurship emerged in different countries as a method to develop entrepreneurial cultures, to create new businesses, to promote entrepreneurship, and to foster entrepreneurial mindsets via education and learning. In relation, Hannon (2006) in QAA (2012) explained that learning about entrepreneurship and experiencing it at a university can have several benefits. It gives students an alternative career option and the confidence that they can set up their own business or social enterprise. Enterprise skills will also be useful to those in employment, or those who will become self-employed and work on a freelance or consultancy basis, helping develop a 'can-do' confidence, a creative questioning, and a willingness to take risks. Moreover, it is important to provide readiness for a rapidly changing economy, and to enable individuals to manage workplace uncertainty and flexible working patterns and careers. Enterprising skills such as team working and the ability to demonstrate initiative and original thought, alongside self-discipline in starting tasks and completing them to deadline, are essential attributes that have been identified by employers as priority issues (QAA, 2012).

According to Nastase (2012), there has been a focus on three aspects of entrepreneurship education, for example, the experiences in the University of Cambridge (UK) displays that: (i) *entrepreneurial motivation* which includes the question of what motivates individuals; the social and economic importance of commercializing science and technology; the fun aspects of it; through role models, examples and class discussions; (ii) *opportunity recognition* which is a very important aspect of entrepreneurship education as so much is predicated on whether or not people are able to “see” an opportunity that motivates them to pursue it. This is taught through “action learning” methods; (iii) *commercialization* which is related through a variety of situations and a

number of ways to different levels of depth namely through lectures from practitioners, business plan competitions, short pieces of course work and small group supervisions.

Enterprise and entrepreneurship education may be managed by a central unit; embedded in the curriculum by subject specialist educators; under different names such as 'professional studies' or 'personal marketing skills'; delivered through a careers service; and led or supported through facilities such as incubators, boot camps and extra-curricular clubs and societies (Gibb, 2005). In the context of extra-curricular activities, some institutions offer summer schools or events that are led by staff or students. Many actively support start-up activities and deliver mentoring support beyond graduation. Knowledge transfer partnerships offer real-life opportunities. Students can also gain practical experience through external bodies such as non-profit national or an international not-for-profit organization that works with leaders in both business and education to develop socially responsible entrepreneurs (QAA, 2012).

### **Models/Principles of Entrepreneurship Studies**

In the discourse surrounding Entrepreneurship Education, several models/principles of entrepreneurship studies have been discussed and presented. Jarna and Hytti (2008) have identified four different delivery mechanisms in university context. Of which, two different principles are for delivering entrepreneurship programs to business students, and two different principles for non-business students. The first relates to *perceiving entrepreneurship studies as a research field in a business school*. The second is the development of *entrepreneurship as an integrated and synthetic subject in a business school*. The third and the fourth take place *in a non-business context: entrepreneurship as an add-on subject; and the embedding of entrepreneurship studies in the entrepreneurial university*. The model of 'Entrepreneurship as a Research Field' is to develop entrepreneurship as a research discipline within the university, and hence the entrepreneurship studies are geared to developing the research skills of the students. It is also to generate research knowledge that the students could apply in preparation for (external or internal) entrepreneurship, i.e., for acting as entrepreneurs. Entrepreneurship as a research field has developed alongside other business disciplines, including marketing, management, accounting and finance, and it has 'fought' for its position as a 'proper' research field with core theoretical concepts, models and perhaps even paradigms. Therefore, a number of universities, especially

business schools, now offer entrepreneurship as a major subject, thereby allowing the possibility even to conduct doctoral studies as in other related disciplines (Gibb 2005; Jarna & Hytti, 2008).

The model of 'Entrepreneurship as an Integrated and Synthetic Subject' allows many interesting teaching and learning approaches, i.e., ways of delivering business studies (including entrepreneurship) to students. The objective for such a model is to educate students for running and managing (entrepreneurial) organizations as a whole, and hence for acting as (external or internal) entrepreneurs. Within this approach, the close integration of industry and businesses is emphasized, and entrepreneurship is believed to give it a 'practical' flavor with the opportunities for students to learn through reflection-in-action; which in turn, challenges traditional, formal university teaching, that does not necessarily emphasize the real-life nature of businesses. In addition, as explained by Jarna and Hytti (2008), studying a company as a whole makes it possible to build multidisciplinary research teams with a more holistic research agenda and questions. This approach may enrich students' holistic understanding of businesses without diminishing the role of any of the disciplines. In practice, this might imply breaking up the traditional departments within business schools, withdrawing small courses from different disciplines, and creating larger holistic entities in which, with the help of experts from various disciplines, students investigate particular phenomena.

The other model/principle is using 'Entrepreneurship as an Add-on Subject'. It is argued by Hynes (1996), Johnson, et al. (2006), and McKeown, et al. (2006) in Jarna and Hytti (2008:334) that if business creation is the main aim of entrepreneurship education, the business school may not be the best place for it. Due to societal changes, it is explained by Heinonen – Kovalainen, et al. (2006) that entrepreneurship opened up as a relevant career choice to increasing numbers of people coming from different academic disciplines, and not primarily from business studies. Thus, in terms of start-ups, the most successful entrepreneurship programs are suggested to come from science, technology, the creative sector and engineering. Therefore, having established its position in a business school, the next challenge is to move into non-business schools with the goal to provide with general business competence, and business basics regardless of their disciplines. The challenge with this type of is that entrepreneurship and business competence studies are considered add-on subjects that complement students' knowledge in other university discipline (e.g., engineering and the natural sciences). In addition, existing curricula may have limited scope

for expansion. Hence, introducing entrepreneurship courses would mean that other courses would have to be dropped (Smith, et al., 2006). Moreover, the programs are often voluntary and hence their take-up may be relatively low; consequently their effectiveness remains limited in the university as a whole (in Jarna & Hytti, 2008:334).

The fourth model/principle deals about ‘Embedded Entrepreneurship Studies’. In this model, entrepreneurship studies are not addressed just by one (marginal) subject within the larger university setting. Rather, they deal with the entrepreneurship content; apply pedagogies stimulating entrepreneurial behaviors, skills and attributes; and offer a way of integrating these with other university disciplines during the delivery process. The objective of such studies is to create new multi-disciplinary knowledge and even to contribute to the development of an entrepreneurial university and a university that embraces entrepreneurial action, structures and attitudes (Rinne – Koivula, 2005). This implies the value not only of integrating business studies into the entrepreneurship program, but also integrating the entrepreneurship program into other academic disciplines.

### **Dimensions of Entrepreneurship Education**

According to NIRAS (2008), there are several dimensions of entrepreneurship education revolving around educational set-up namely, educational scope; institutional characteristics; outreach; and evaluation that are identified. The factors in the dimensions include: strategy, institutional infrastructure, development, resources and teaching and learning approaches. The first dimension is about strategy on entrepreneurship education. Becoming an entrepreneurial HEI is achieved by focusing on various dimensions of entrepreneurship education. It is not enough to exclusively supply students with courses in or about entrepreneurship or engage in other isolated efforts such as making use of placement programs in start-ups, establishing incubator facilities or appointing professors of entrepreneurship. A central element of facilitating sustainable and effective entrepreneurship education is to embed entrepreneurship in the overall strategy of the institution. This can be fostered by having an institutional action plan for how to achieve the goals set out in the overall entrepreneurship strategy. And for the multidisciplinary institutions, each of the faculties should have their own policies for undertaking multidisciplinary entrepreneurship

education. Furthermore, support from the top management at the HEI will often be a prerequisite if the entrepreneurship education is to succeed and be an integral part of the HEI (NIRAS, 2008).

Hence, the strategy dimension includes aspects such as entrepreneurship strategy and goals, explicit entrepreneurship policies, entrepreneurship advisory boards etc. According to Hoffmann, Vibholt, Larsen & Moffett (2008), strategy covers a wide range of issues pertaining to the structure of entrepreneurship education, including: building an entrepreneurial mindset; the use of guest lecturers; education training of teacher-entrepreneurs; the availability of internships or practical experience; ongoing relations with the business community; the use of role models; the development of student personalities; experimental approaches to education; and the extent to which teachers have an entrepreneurial background.

Institutional infrastructure is the second dimension required for effective and sustainable entrepreneurship education. In relation, NIRAS (2008), indicated that physical structures include an entrepreneurship centre or department, incubator facilities and technology-transfer offices. Institutional infrastructure covers the approach to the facilities supporting entrepreneurship education at the HEIs such as an entrepreneurship center or an incubator as well as the people appointed to run such facilities, for instance entrepreneurship professors. The elements also cover research and cross-discipline structures that could support and develop entrepreneurship education at the institution. To Hoffmann, et al. (2008), this dimension also determines whether entrepreneurship is a top priority for the relevant faculties and for the university as a whole. If the quality of institutional characteristics is sub-standard, teachers will find it difficult to address issues related to educational scope and educational set-up. The dimension also covers the involvement of business and other faculties in the management of the entrepreneurship program, network activities, interdisciplinary activities, study labs where students can exchange ideas, rules pertaining to transfer of credits, and the extent to which entrepreneurship is a part of the overall educational approach. Dedicated research activities in the entrepreneurship field can also contribute to a high degree of embeddedness of the entrepreneurship education.

Further, this institutional infrastructure dimension takes into account opportunities to gain practical experience, through various outreach activities including links with external stakeholders like government agencies, foundations, science parks, and former students. For

example, Hoffmann, et al. (2008) argues that alumni networks also provide universities with a source of mentors and internships and they are believed to more than willing to share lessons learned and provide opportunities for students to get hands-on experience. However, it is also argued that proper guidance and the availability of adequate venture capital are crucial elements in the successful launch of a business concept. Specifically, outreach covers access to incubators the extent to which incubators are a part of the university setting, vocational guidance (mentoring), venture capital or business angels, alumni networks, Intellectual Property Right (IPR) support and business plan competitions. Outreach is important, since the start-up of a knowledge-intensive company poses a number of complicated issues. Further, relationships with the surrounding community (e.g. entrepreneurs) can strengthen the entrepreneurship education by making it more dynamic and ensuring that is up-to-date. This relationship can go both ways, firstly, by securing links to the community that enables the students to get a feel for the outside world through internships etc., and secondly by opening the doors to the institution allowing the outside world to enter the institution by offering for example advisory service to local companies and entrepreneurs (Hoffmann, et al., 2008).

The additional measures to be taken include providing outreach support services associated with the dimension of institutional infrastructure. In this regard, Mitra and Manimala (2008) stated that support services need to include the following: a) creation of entrepreneurship centers with financial assistance and/or advisory participation from external agencies; b) constituting advisory boards with eminent experts from various fields, including entrepreneurs; c) training of faculty especially in the technical departments by entrepreneurship experts; d) facilitating students' interaction with practicing entrepreneurs through schemes such as "entrepreneurship residence hall", student mentoring by entrepreneurs, collaborative teaching with entrepreneurs, students doing consulting work for entrepreneurial firms, etc., and e) securing external funding support for entrepreneurship outreach activities, in the form of subsidized programs, tuition support, seed funding, and so on.

*Development* as the third dimension of entrepreneurship education focuses on whether the HEIs strive to continuously improve their entrepreneurship activities. Therefore, according to NIRAS (2008), the dimension measures whether the HEIs: (i) evaluate their entrepreneurship educational

activities in order to make sure that the activities have the educational impact aimed at developing , entrepreneurial behavior, skills, knowledge, mindsets and experiences to obtain the long-term effects such as venture creation, intrapreneurship etc., (ii) the needs and wishes of the present and past direct users like the students and alumni, and the indirect “end users” such as the potential employers, venture capitalists and so on when improving their entrepreneurship education; and on (iii) the skills and competencies of the staff teaching entrepreneurship. Thus, the development dimension comprises the aspect of the human resources utilized in the entrepreneurship education and for example, focusing on whether entrepreneurs are used as guest lecturers or whether the academic staff who are teaching entrepreneurship have their own entrepreneurial experiences.

The fourth dimension of entrepreneurship education is related to the issue of *resources*. According to NIRAS (2008), to be able to establish entrepreneurship education as a part of a HEI, dedicated funding, mainly state-funded as part of the general funding for the HEI, or funds which may also come from other generated income sources is necessary, if not crucial. The assumptions are that firstly, entrepreneurship education will most likely increase if dedicated funding is allocated and especially so if the funding is long-term as opposed to more short term or project-based funding. Secondly, the size of funding will of course determine the scope of the entrepreneurship education activities in the institutions. Furthermore, making entrepreneurship education a permanent element in the HEIs will be more likely to happen if either the entrepreneurship activities can generate an income of its own and/or attract external funding to the HEI.

The fifth dimension includes the approaches of teaching and learning the entrepreneurial education. Regarding the pedagogy, Kohler and Huber (2006) and Mora and Vieira (2009) argued that entrepreneurship development through teaching and learning requires something else than standard textbooks and ordinary classroom settings. An ‘entrepreneurial’ pedagogy seeks to enhance entrepreneurial capacities and capabilities amongst students by giving them more autonomy and responsibilities in the learning process through experimental, collaborative and reflexive learning. Of the range of adopted and developed new, innovative, hands-on teaching methods for entrepreneurship education by universities and colleges, most are often categorized into three approaches (Heinonen & Hytti, 2010). These are teaching “about” entrepreneurship, a content-laden and theoretical approach aiming to give a general understanding of the

phenomenon; teaching “for” entrepreneurship: i.e., an occupationally oriented approach aiming at giving budding entrepreneurs the requisite knowledge and skills; and teaching “through” entrepreneurship refers to a process based and often experiential approach where students go through an actual entrepreneurial learning process.

Further, within the university-wide, two approaches of accountabilities and assignments of teachers for entrepreneurship education are identified. These are the magnet and radiant models. The magnet model refers to a single entity facilitates entrepreneurship classes offered to students from all departments; while the radiant model is where individual departments develop their own entrepreneurship faculty and course offerings (Hoffmann, et al., 2008). In some respects, the magnet model seems the preferred one. Given the problem of limited resources, to Hoffmann, et al. (2008), the magnet model is suggested as the least resource-intensive approach to offer a wide variety of entrepreneurship classes to all students at a university. Furthermore, it is argued that magnet model is more effective to manage industry ties from a central office and to allow a greater pool of students to connect with a greater pool of private organizations. To develop entrepreneurial competences specific to the students’ degree of specialization, the radiant model has also the advantage of having a specialized entrepreneurship faculty within the department. Nevertheless, both models have limitations. For instance, the magnet model has the disadvantage that students may not become aware of the classes offered outside their own department; while the clear disadvantage of the decentralized radiant model is fewer resources and less outreach per program, and most likely a smaller set of classes for students to choose from (Hoffmann, et al., 2008). Universities could choose a combination of the two models – that is, have a centralized administration to manage industry ties and to facilitate one or more core entrepreneurship classes, which would be required for all students at the university. The individual departments could then provide specialized entrepreneurship electives within their field of study.

### **University as a Pathway to Entrepreneurs**

The decision to be entrepreneurial is a process. For institutions of higher education to be entrepreneurial, they should facilitate those who aspire to be entrepreneurs including staff and students (Byrnes, Paez, Blacker, Jackson & Dwyer, 2010). It is achieved when universities raise awareness on the importance or value of generating entrepreneurial abilities among students and

staff. This implies that universities provide opportunities and facilities to act on ideas developed by students and staff. It includes exposing both students and staff to different challenges and real life problems that encourage them to develop entrepreneurial skills, allowing them to interact with entrepreneurs and trainings, and may also include integration of enterprise activities in education strategies.

Hoffmann, et al. (2008) indicated that the developing of entrepreneurial awareness and ability is an essential function of institutions which includes abilities that support development of new ideas, career development, and employability. Common to many entrepreneurial environments are multidisciplinary multitasking, long working hours, unpredicted situations and a profound sense of urgency that easily leads to stressful work under pressure. This prepares students for the real world of entrepreneurship by translating what they learn into practice. The ability to work and thrive in such environments is not something that can be taught in a classroom setting; rather, it is conveyed through hands-on experience with entrepreneurial projects or internships. It is an important part of teaching entrepreneurship, because anyone involved with early stage ventures, be it as entrepreneurs, employees or external advisors will need to learn the different pace, higher level of expectations and working under pressure. Furthermore, entrepreneurial universities can assist the students and staff to move their entrepreneurial ideas into action; or the created ones to implementation (Byrnes, et al., 2010). In addition, universities could help potential entrepreneurs to access private financial services, through creating a link with relevant industries. To accomplish this, universities provide networking activities for new entrepreneurs. In these events, potential entrepreneurs meet investors who help them pitch their ideas. Furthermore, universities act as incubation facilities to students and staff with entrepreneurial ideas through provision of training, access to financing, mentoring, coaching, IT services, research facilities, laboratories, and subsidized premises (Byrnes, et. al., 2010). Therefore, for institutions of higher education to be entrepreneurial, they should facilitate those who aspire to be entrepreneurs including staff and students

#### **4.6 Proximities of Performances to Entrepreneurial University**

The performances of a university can be viewed along a spectrum of traditional- entrepreneurial paradigm (Philpott, Dooley, O'Reilly & Lupton, 2011). It is argued that entrepreneurial

universities are quite different from traditional universities. The main difference between traditional and entrepreneurial universities is the mission of the latter in contributing to the economic development of their communities through entrepreneurial activities. The activities which are close to entrepreneurship are called '*Hard Activities*' and those which are close to academics are called '*Soft Activities*'. Based on these categorizations, hard activities such as patenting, licensing and spin-off venture formation are generally perceived to be the more substantial outputs of mature entrepreneurial universities (Klofsten & Jones-Evans, 2000; Rasmussen, et al., 2006). The softer initiatives such as academic publishing, grantsmanship and contract research align better with the traditional academic culture (Klofsten and Jones-Evans, 2000; Louis, Blumenthal, Gluck & Stoto, 1989) and in certain cases may not even be viewed as entrepreneurial activities by the wider academic community (in Philpott, et al., 2011:162).

While the dominant view is that hard activities can beneficially contribute to the economy, the support of such activity should not come at the expense of support for softer activities. Even at some situation, the softer activities are getting attention. As a cautionary example, Bubela and Caulfield (2010), in Philpott, et al., (2011:164) assert that though officials of Canadian universities recognize the value of university technology transfer through engaging in both soft and hard activities, the Canadian Government continues to overemphasize the production of harder entrepreneurial outputs. Consequently, it would appear more appropriate for universities and governments to be indifferent about specific types of entrepreneurial activities, and instead support activities based on their individual merits. Further, Scott, et al. (2001) and Ranga, et al. (2003) also assert that maintaining variety amongst technology and knowledge transfer channels sustains the flexibility of national innovation systems. Engagement by university in the softer entrepreneurial activities can often provide the foundation, capability and maturity for the future development of other harder entrepreneurial activities (in Philpott, et al., 2011:164).

The findings of Cohen, Nelson & Walsh (2002) research indicate that often the best way that universities can transfer their knowledge to industry is through the softer channels, specifically publications, conferences, informal exchanges and consulting. Moreover, it has also been shown that the production of university graduates can have a significant impact on the economy. One study found that MIT graduates had founded 4000 companies, which accounted for \$232 billion in annual revenues worldwide (Bank Boston, 1997). Direct spin-off company formation based on

university Intellectual Property (IP) is certainly economically beneficial; however, providing individuals with the skills necessary to launch companies after graduation from university is likely to have a much greater economic impact (in Philpott, et al., 2011:163). This indicates the importance of entrepreneurship education at the very base of the spectrum in the traditional entrepreneurial paradigm.

Another particular soft activity that has the potential for significant economic contribution is basic research. Although inherently more difficult to quantify, Salter and Martin (2001) assert that publicly funded basic research can provide a range of economic benefits. Such research can create fundamental new knowledge that has the ability to drive certain industries. Besides, new methodologies and instrumentations are often developed during basic research; when transferred to industry, which in turn can actually speed up rates of technological change. Moreover, conducting basic research can provide graduates with key tacit knowledge, which can later be transferred to industry through employment. Finally, carrying out basic research allows graduates to develop the skills necessary for complex problem solving, necessary in the modern industrial environment. So even though the impact of basic research is difficult to measure, it can still significantly contribute to industry. Thus, Philpott, et al. (2011) argued that despite the current emphasis on hard entrepreneurial activities, softer activities have also significant roles in the universities' efforts to contribute to economic development.

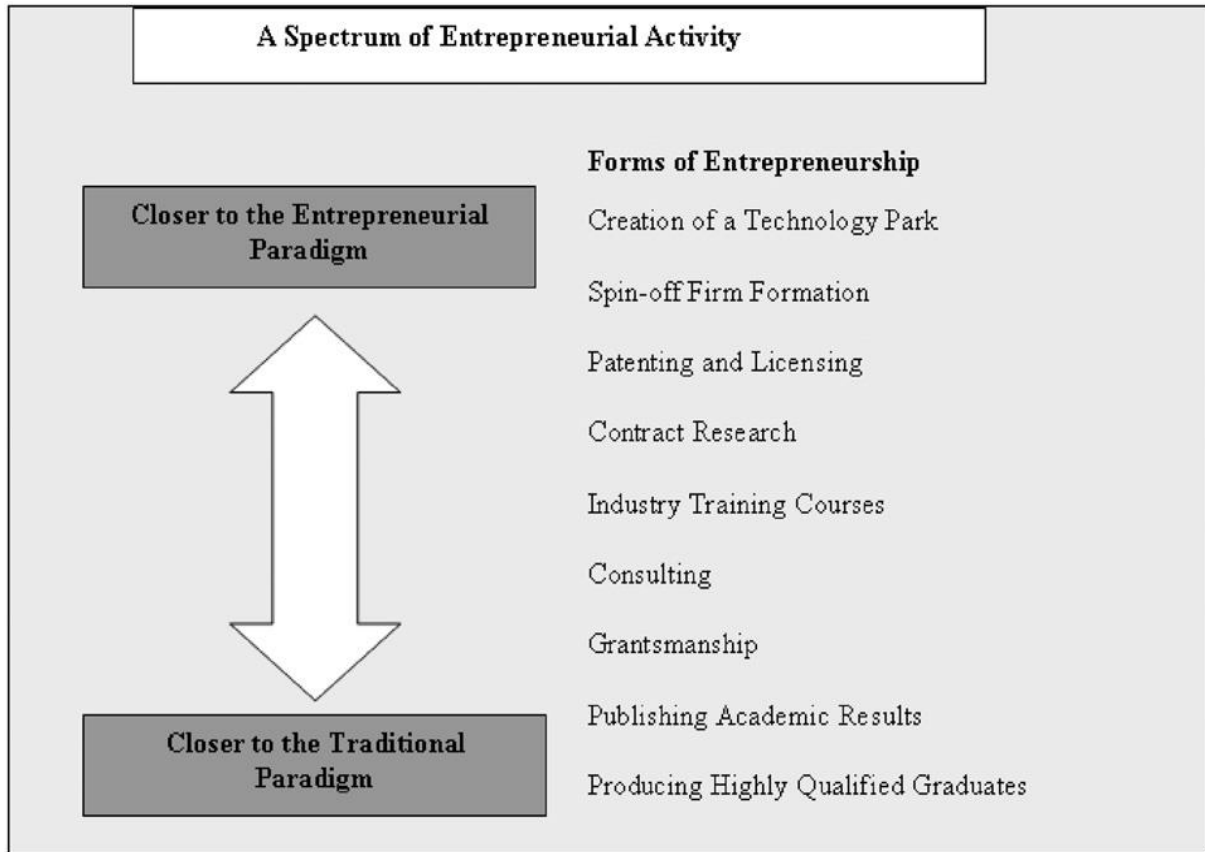
The entrepreneurial activities in the soft category would include among others: (i) *creating skilled and qualified graduates* - a stage at which universities should design the graduation courses in collaboration with industry and government as per their requirements, and incorporate the entrepreneurial knowledge and skills in the traditional courses to develop entrepreneurship among student community; (ii) *publications and documentations of research activities* - here, universities can showcase and archive the research outputs, innovative inventions and discoveries in the form of research papers, articles, books and data bases. This activity can develop the universities' brand as research institute at national and international level, promote the research capabilities of universities and confidence of industry for collaboration and partnership (Powers, 2004, Di Gregorio & Shane, 2003, Van Looy et al., 2004; in Pahurkar, 2015:49); (iii) *research funding and grants (grantsmanship)* - where industries, government and international organizations are to be targeted to avail the funding to carry out major researches. (iv) *consulting assignments* - where

universities can undertake various projects to share their expertise in any particular subject; (v) *relation to executive education/industry training courses* - universities are supposed to design training programs and courses to upgrade the skills of industry and government employees through management development programs and technical courses based on current trends and new technologies; (vi) *collaborations and networking with other research institution and contract research* - where universities have to share the resources and expertise of other research organizations. This last but increasingly important feature of such soft entrepreneurial activities would enable universities to get access to more advanced technologies and laboratories, add more value through additional research and can be helpful to get new clients for commercializing their research. It may include the undertaking of research works to solve the industrial problems and to develop innovative products and processes so that to bring universities and industries more closely to solve the social problems and act entrepreneurially.

In a similar vein, entrepreneurial activities in the hard category, according to Philpott, et al. (2011) include: (i) *protecting intellectual property rights (IPR) through patents* - activities at which universities can provide legal protection of intellectual property from the unauthorized users, and secure control on those outputs of research activities having market demand; (ii) *new venture start-ups* - exhibited at a start of new firms as offshoots of university research into viable business with the help of industry or venture capitalist; and (iii) *establishing technology park* - marked by the establishment of a place where industry and researchers from university can jointly work on industrial problems and where university can share its innovative researches having market potentials. In the process, universities can provide infrastructural facilities along with industrial partnership or government aid. This will provide platform for development of multiple new ventures contributing to economic growth and social balance of region. This initiative can lead to research and educational opportunities for university in collaboration with industry. The main thing is that, university can generate revenue from licensing and technology transfer (Pahurkar, 2015:49). All the above mentioned entrepreneurial options have different level of proximity to entrepreneurship. Hence, universities may design their own mixes of entrepreneurial activities eventually leading to economic and social development of nations (See Figure 4.2 below).

**Figure 4.2**

*Spectrums of Traditional-Entrepreneurial University*



Adopted from Philpott, et al. (2011:162)

However, in pursuit of the entrepreneurial university ideal, management must avoid adoption of a ‘one size fits all’ approach (Clark, 2001) as higher education is not uniform rather significant differences exist among them across different countries and even between institutions within the same educational system. It is also important to be noted that the ability of a university to engage effectively in entrepreneurial activities can be constrained by its context and resource-base capability and capacity (Williams & Kitaev, 2005).

#### **4.7 Performances of Universities in Resource Mobilization and Diversification**

The underlying aim of resource mobilization and diversification is to support the main mission and activities of an institution and to contribute to financial sustainability. According to

Estermann & Pruvot (2011), it is important to stress that income diversification or income generation should never be seen as a goal in itself. Ultimately income generating activities should lead to returns in the long or the short term. Of course, this can include non-financial returns. Hearn (2003:19) argues that potential returns can be nonfinancial as well as financial and can come in the short or long term. Besides, producing new institutional revenues that are fully balanced or even dwarfed by new, associated costs is acceptable if there are notable non-financial returns and if the new net costs are viewed as acceptable from an individual, institutional, or public perspectives.

Entrepreneurial initiatives within universities require the use of venture capital, loans and R&D subsidies or grants such as financing mechanisms (Wright, et al., 2007). In particular, in a turbulent environment where the increasing external demands and conditions seriously question the universities future, new ventures and initiatives become critical for higher education institutions. Higher education institutions have to deal with “*quasi markets*” to secure their existence and nonetheless, they have to answer calls for economic relevancy because it is here, where the validity of entrepreneurialism in higher education comes through. As Peterson (2007:175) puts it: “*it requires them to be much more opportunistic as well as market driven. Institutional redesign and macro or transformational change, not just strategic responses, became necessities for some*”.

Thus resource mobilization and diversification most often refers to the distribution of different funding sources within the overall income structure of a university. In this context, three broad categories are defined by Estermann & Pruvot, (2011) i.e., public funding (or taxpayer funding), private funding through student financial contributions (or user-fee principle, tuition fees) and other third party funding sources. Meanwhile, in broad terms, most higher education institutions receive their income via three main routes namely, (i) regular core income from government for teaching and in most countries, for basic research; (ii) additional research funds mainly from government that are earned, at least in part, competitively; (iii) ‘third stream’ or ‘third mission’ income earned on a quasi-commercial basis for contract research and teaching and use of university facilities by outsiders (Williams, 2009:10). Private funding through user-pay principle is to be added in the list.

## **Public Funding (Tax-Payer Funding)**

The main ways in which national governments play a part in promoting entrepreneurialism in universities and their contributions to the knowledge society is by establishing an appropriate legal framework for them to operate within. Despite the collapse of centrally planned economies and the global spread of market ideas in higher education, national governments still exercise considerable power and influence over their universities and colleges (Kitagawa, 2005; Williams & Kitaev, 2005; in Williams, 2009:17). As a general rule, institutions that receive all or most of their income in the form of line item budgets and those who must be strictly adhered to are unlikely to have the incentive or the opportunity to generate additional income through entrepreneurial initiatives. At the other extreme, universities that receive generous public funding with little accountability over how it is used have little incentive to attempt to make the services they can provide widely available outside academia. In contrast, if their core funding is not generous and they are able to retain any supplementary income they can generate, they have an incentive to show many more aspects of entrepreneurialism and to sell their services in the wider society (Williams, 2009). This is due to the fact that “Universities will raise all the money they can and spend all the money they raise” (Bowen’s Law: cited in Samuel & Hines, 2006:13).

Of the schemes of funding of public universities those kinds which are seen by universities as a desirable incentive mechanism to foster income diversification follows different approaches (Estermann & Pruvot, 2011:18) i.e., *‘the block grants approach’* which refers to a financial grant covering several categories of expenditure (such as teaching, ongoing operational costs and research activities). In this approach, universities are mainly responsible for the internal allocation of funding according to their needs (although minor restrictions may apply). In this regard, although block grant funding allows the university to maintain internal financial autonomy, it does influence the institution’s choices through the funding formula. Public authorities tend to resort to funding formulae which increasingly include performance criteria. Alongside block grants, public authorities increasingly tend to use *‘competitive’* and *‘targeted funding’*, a trend which has been exacerbated by reduced investment capacity. This trend, which consists in reallocating funds from the block grant to specific funding lines, in turn affects the university’s ability to make strategic choices in the internal allocation of its funds, thereby restricting its autonomy. Indeed, targeted funding often aims at achieving specific objectives in line with

strategic national priorities. Further, in a framework where block grants do not increase or actually decrease, additional funds may be allocated through '*project-based funding*', which in most cases are allocated through competitions organized by specific bodies. These competitions become highly relevant for universities as a source of income, their success rate in these competitions may even be included in the criteria used in the funding formula of their block grant. With the relative increased share of competitive funding, universities respond to new challenges by investing in their research support capacities (Estermann & Pruvot, 2011).

The other public funding approaches to be available in universities are '*co-funding*' requirements whereby institutions are requested to finance part of the activities, whereby, the main funder requires the beneficiary institution to raise a proportional amount of the full cost of the activity or project being funded, from its own budget or another public or private source. Co-funding, however, can potentially harm the university's financial sustainability, especially if it becomes the rule for a significant part of the funds received from public authorities. Moreover, this is putting an additional strain on universities' core resources as it requires that the university seeks part of the funding elsewhere. In addition, public universities' experience '*matched funding*' schemes whereby public money comes to match to the money raised from the private sector by the university. Modalities may be diverse but these measures have often proved their effectiveness in increasing the participation of the private sector in higher education through philanthropic funding. Key principles for success include, according to Estermann and Pruvot (2011) simplicity of rules, broad definition of university activities and types of donors eligible for matched funding and a guarantee not to reduce core funding.

### **Application of a User-Pay Principle**

The increased application of market mechanisms is advocated to propel higher education institutions towards embarking on reforms in accordance with the operation of marketization, (Babalola, 2010; cited in Ibra, 2011:7). This implies that higher education is expected to start thinking on how to increase the stream of private funds. The "user-pay" principle is one form of marketization practices in higher education (Mok & Lo, 2002). Trends in line with it are for instance, increased student's tuition charges and fees; increased competition for finances; diversification of financial resources; diversification of the routes for financial supports;

outsourcing of student loan programs to banks; increased institutionalization of privatization; and innovation in university management and funding.

In particular, a process of charging tuition fees from students who, are the direct beneficiaries of the tertiary education system on average, and earn high private returns from their tertiary educational experience, as to the World Bank (1994) has been the most significant avenue to increasing the proportion of tertiary education.

Consequently, a growing number of developing countries are moving in the direction of '*cost-sharing*' or '*fee-charging*' principle and in line with it HEIs in different countries have started different kinds of "*self-financing*" programs/courses to attract students in order to generate additional income (Mok & Lo, 2002). It was argued that "*all education in all countries is expensive and occupies a substantial part of national budgets. But higher education is particular costly*" (Mok & Lo, 2002:62). As a result, the "user-pay" principle is becoming more prominent in the practices. Of course, any movement to a process of charging tuition (user-pay principle) throughout the tertiary educational system has to be reconciled with two key roles of tertiary education: that is, providing individuals with opportunity and contributing to social justice (Finnie, 2002). However, a consensus is emerging in the literature on diversifying of the funding of tertiary education through user pay principle.

### **Generation of Resources from the Third Sector**

It is argued by Petrica and Salihovic (2008) that creation of financially independent university on state sources of financing is an important prerequisite for creation of entrepreneurial university. Financial independence (of university) creates a sense of controlling one's own destiny, because it allows the university to launch and implement projects according to its own wishes and priorities, and prevents unwanted commercialization of university services, because it provides the freedom to choose projects. According to Clark (2003: 102-108), a university seeking to become entrepreneurial must move from sole dependence on government block grants to the development of the 'third stream' sources that can be made up of such components as government sources other than from education ministries, for example, industry development funds, medical research funds, defense research contracts; private organizational sources like professional associations, philanthropic foundations, and businesses; university-generated income from tuition

fees, alumni donations, endowments, earned income from campus operations and services (e.g. housing provision), royalties, licensing fees and Intellectual Property profits.

Moreover, other than the financial resources from the government and the market, the role of the “third sector” such as the non-governmental organizations (NGOs), social organizations and individuals are mentioned as an increasingly important scheme in providing funding resources to HEIs. For instance, important third stream activities, according to Williams (2009) refer to such actions as joint and contract research including spinouts, engagement in networks of stakeholders, contribution to community activities and placement of students and staff with business and social enterprise. Third stream schemes further include new forms of revenues from renting out of underutilized assets; the broadening of the activities of available human resources, in particular pursuit of a more substantial level of consulting activity across all departments of the university not just business schools; more vigorous pursuit of research contracts particularly commercial research and development contracts; sales of IP; spinoffs; philanthropy; closer partnerships with private providers and in some cases privatization; cost savings by subcontracting out of a wide range of services; and seeking new forms of leveraging from existing private resources.

The question, therefore, is not whether universities must or will find new ways to raise money, but what these ways will be, how they will affect traditional university values, whether the changes can be controlled, and whether the costs of change are worth the income change is supposed to bring (Ellin, 2006). Clark (2003:108) notes that in pursuing for revenue, a university must take care in pursuit of revenues from ethical sources, rather than ‘...*turn (ing) the university into a shopping mall*’. The university must hold a clear concept of the primary mission of the educational institution, and encourage only those forms of revenue generation that do not corrupt that mission, even whilst diversifying it. Ultimately, this is a matter of values and beliefs that university leaders shall embody, uphold, and articulate those with regularity and clarity (Clark, 2004).

Despite the fact that universities can pursue alternative revenue streams and adopt more business-like perspectives, Hearn (2003) has suggested the revenue-seeking efforts of universities to be investigated in eight domains, namely: (i) instructional initiatives; (ii) research and analysis initiatives; (iii) pricing initiatives; (iv) reforms in financial decision making and management; (v)

human resource initiatives; (vi) franchising, licensing; sponsorship, and partnering arrangements with third parties; (vii) initiatives in auxiliary enterprises, facilities, and real estate; and (viii) development office initiatives. Therefore, decision making regarding any prospective initiative is supposed to be institution specific, and different contexts could shape the choices of revenue initiatives at each college or university.

#### **4.8 Factors related to University Entrepreneurialism**

The emergence and consolidation of the entrepreneurial university is the result of a complex interplay between exogenous and endogenous factors combined in different ways and in different countries. Exogenous factors include socio-economic crises leading to loss of manufacturing industries and failure to create an alternative energy industry (e.g. the US), economic and social stasis (e.g. Japan), movement of corporations and entrepreneurs abroad (e.g. Sweden) or persisting extremes of wealth and poverty (e.g. Brazil), which are followed by various government policy responses requiring universities to play a larger role in innovation as a renewal and growth strategy (Etzkowitz, et. al., 2008). On the other hand, endogenous factors include internal transformations within the university or other bottom-up organizational and management changes driven by changes in the intellectual property (IP) regimes.

Further, several classifications of entrepreneurial orientation antecedents have been suggested by research. Yet, there is a high level of agreement on distinguishing between three main categories: organizational, individual and environmental factors (Garofano & Gurero, 2009). The major factors in creating an entrepreneurial university are internal/organizational and external environment, especially the industrial environment. Both of these factors are amenable to change through initiatives to encourage entrepreneurship and regional development. This implies that neither lack of an industrial environment nor an entrepreneurial culture is an inevitable impediment (Etzkowitz & Zhou, 2008). Therefore, it is possible to argue that the entrepreneurial university emerges from diverse sources: endogenous, exogenous and mixed.

In particular, governments at the national, transnational and regional levels increasingly expect universities to play a greater role in economic and social development. Some universities preempt these pressures and take the initiative on their own, viewing mission extension both as a means to gain additional support for traditional missions and as an approach towards playing a

larger role in their societies. Internal impetuses arise from extension of the university's traditional mission of teaching or professional training for entrepreneurship. On the other hand, the external environment of the firm has also been recognized as an important determinant of entrepreneurial orientation (Davis, 2007). The external environment not only offers new opportunities but also poses complex challenges, to which firms must respond to creatively (Covin & Slevin, 1991, Zahra, 1991). Nevertheless, universities and academics, even more so believe that they are unsinkable whatever the external circumstances or the internal difficulties. This is due to the fact that the durability of universities is certainly central to their overall mission which is incomplete contrast to the highly transient nature of private sector firms. However, a firm's existence is never guaranteed, the various stakeholders have to stick together to some extent as well as quickly adapt to new constraints and new professions, while such process takes much longer in universities (Daumard, 2001).

#### **4.8.1 Organizational /Internal Entrepreneurial Environment**

The earlier literature on entrepreneurship has provided empirical evidence for the importance of internal factors that include among others, company's organizational structure (Guth & Ginsberg, 1990; Covin & Slevin, 1991); incentive and control system (Kanter, 1984); managerial support (Stevenson & Jarrillo, 1990) and resources. By affecting the internal environment, these elements may determine a growing interest in entrepreneurial orientation and influence the types of entrepreneurial activities undertaken within a company (Garofano & Gurero, 2009:85). In addition, a previous study conducted by Kuratko, Montagno & Hornsby (1990) highlighted that top management support, reward and resource availability, organizational structure and boundaries, risk taking and time availability are key internal factors able to enhance and support corporate entrepreneurship.

Results of these studies were reinforced by the findings of Zahra (1991) that examined several internal organizational antecedents of entrepreneurship as well as the relationship between such firm's behavior and its financial performance. Zahra (1991) distinguished between tangible and intangible factors. Tangible factors refer to those organizational characteristics that can represent impediments as well as benefits of developing entrepreneurship, such as communication, environmental scanning intensity, integration, differentiation and control. Intangible factors refer

to dominant organizational values and beliefs that able to lead the organization to act entrepreneurially. Both theory and practice suggest that a low level of formalization along with open communication spur the birth of new ideas and, thus, of entrepreneurial activities, as they facilitate employees' participation. Accordingly, in their study on corporate venturing, Burgers, Jansen, Van den Bosch & Volberda (2009) propose that an informal organizational integration (i.e. a shared organizational vision) enables organizations to achieve strategic coherence and integration of structurally differentiated organizational units, with a favorable impact on entrepreneurial activities.

Regarding the realization of the entrepreneurial university, Etzkowitz (2003) indicated three organizational levels to come into play in various empirical cases of entrepreneurial academic transition namely: (i) the policy dimension of how a university and its members may contribute to economic and social development as well as research and education; (ii) the organizational structure of the university and the extent to which it reconfigures itself to support entrepreneurship and innovation; and (iii) the motivations and interests of the individual academic. Furthermore, a meta-analysis made by Bronstein and Reihlen (2014) identified elements which play a more preponderant role in driving the entrepreneurial transformation in higher education. Of which, internal actors such as managers and academics are crucial to the accomplishment of the entrepreneurial shift. Also, diversified funding is paramount because it contributes to the accomplishment of institutional autonomy from the state and its politically influenced resource-allocation policies (Clark, 1998). Besides, managerial and entrepreneurial governance structures are important enablers to support the entrepreneurial transformation. In addition, performance-based incentive structures that reward entrepreneurial activities tend to encourage applied innovations and knowledge-commercialization activities (Debackere & Veugelers, 2005).

Moreover, Middlehurst (2004) argued that organizational factors related to professional management with autonomous decision-making authority and leadership roles directs and sustains a focus on entrepreneurial activities as the strategic priority for the organization. In a similar discourse, Kirby (2004) insisted that it is the entrepreneurship training aimed at improving faculty and student skills that help to promote creative thinking and innovations. Further, Siegel, Waldman & Link (2003) and Fini, Grimaldi, Santoni & Sobrero (2011) mentioned that location plays a preponderant role in defining entrepreneurial activities of universities, as distance to

knowledge and industrial cluster influences the extent of cooperation with industry; and the extent of engagement in entrepreneurial and commercialization activities. Therefore, the constructs within the dimension of the organizational environment, at least can include: control systems, organizational structure, HRM systems, leadership behavior and entrepreneurial culture. These are presented and discussed below.

### **Control Systems**

Control system is one of the constructs of the organizational entrepreneurial dimension. Control system was defined by Long, Burton, & Cardinal (2002:198) as “*any mechanism that managers use to direct attention, motivate, and encourage organizational members to act in desired ways to meet an organization’s objectives*”. Becoming entrepreneurial in this view is intended to help the university maintain control over its mission and core values, while changing its way of doing business in some fundamental ways. Rather than being “dependent” upon traditional funding sources. It seeks to chart its own course and generate more of its own resources. The goal is to become financially independent of state appropriations (Samuel & Hines, 2006:18).

The dimension of tightness and looseness of controls, according to Van der Stede (2001) is directed towards different attributes: (a) amount of emphasis on attaining plans and goals, (b) degree of commitment to allow revisions during the specified period, (c) amount of details, (d) degree of tolerance for budget deviations, (e) degree of involvement of top management in the subordinates’ businesses. Considering the first three attributes then, looseness and tightness can be used for describing both the degree of clearness and the degree of rigidity. Tight goals and plans are characterized by a high level of clearness as well as by a high wealth of details (in Lovstol, 2008:49).

Moreover, Kreutzer (2008:24) used a distinction between formal controls (i.e., behavior control, output control, and input control) and informal controls (i.e., norms, values, culture, and internalization of goals). Marginson (2002) and Diefenbach (2011) also described and classified *management control system* (MCS), in terms of belief and boundary systems, administrative controls, and performance measurement systems. In this case, control systems includes university’s control on the budget and expense claims for research and development, the level of discretion in undertaking work, efficiency versus effectiveness in resource allocation and whether

people talk openly about improving operations (Yusof, 2012). Nevertheless, entrepreneurship and management control systems can easily be perceived as an opposing force in entrepreneurship. Formal management control systems seek to create order and make existent processes more efficient, or renewal and creation; based on ideas about stability and predictability while entrepreneurship is surrounded with uncertainty and chaos. The essential possible way to cope with contradiction between entrepreneurship and management control systems is to put entrepreneurial activities in separate departments and units with special or less need for e.g. planning and reporting. In this way management control systems are avoided when it is assumed to have a counterproductive character (Lovstal, 2008; Mjornvik & Sanfridsson, 2008).

However, Lovstal's (2001) findings show about the existence of two forms of control in the entrepreneurial organization. The first is '*action control*' that is characterized by observation of the staff by other members in the organization rather than supervisors through a process of communication and negotiation; or work rules and regulations. The second is '*output control*' which is normally interpreted as a control where managers communicate standards or targets and prescribe corrective actions from a top-down perspective. Nevertheless, according to Lovstal's (2001) findings, an entrepreneurial organization performs more under a '*shared output control*' where all employees are expected to take responsibility in setting targets and evaluating their own work as well as others performances. Otherwise, lack of formal action and output control in the entrepreneurial organization is classified as an indication of '*loose*' control' (in Mjornvik and Sanfridsson, 2008:22). Therefore, Lovstal (2001) claims that the use of budgets and accounting information does not have a negative impact on the entrepreneurial organization, rather, it is possible to use the budget as a tool to communicate goals and as a '*potential space for action*' and the information effecting the entrepreneurial efforts and values (in Mjornvik & Sanfridsson, 2008:23).

### **Organizational Structure of Universities**

The entrepreneurial character of an organization is intimately linked to its management namely, its internal management structures, decision-making mechanisms and leadership functions. With respect to the entrepreneurial university, Van Vught (1999) argues that horizontal coordination enabled by higher levels of autonomy lends itself more favorably to the integration of intellectual,

financial and physical resources than the traditional hierarchal and bureaucratic model. The hierarchy inhibits the search for and commitment to opportunity, as well as communication and decision-making. Therefore, as identified by Stevenson and Gumpert (1985), an entrepreneurial organization exhibits a flat structure, with multiple informal networks, while the administrator views the relationships more formally along the rights, the responsibilities and the authority on different people and segments of an organization.

Further, entrepreneurial transformation involves remarkable changes also in the structure of institutions including the whole curricular structure and even teaching methods. These alterations play a crucial role in the further development of entrepreneurialism in universities core activities (Gjerding, 2006). In a transformational process, universities need to consider *“reorganising their academic and administrative structures to coincide their changing mission, external environment and inter-organizational relationships. They also may need to reform their academic and faculty roles and create a new culture for doing academic work”* (Peterson, 2007:169). Thus, the changes have to affect both the formal way an institution is run, and its non-formal, i.e., cultural aspect. The formal structure makes explicit the division of responsibilities, rules and roles, flow of information and resources (Gumpert, 2002). It is argued that, organizational structures and tangible infrastructure such as business incubators and technology-transfer offices are strong support mechanisms in knowledge-commercialization activities, such as start-up formation, joint ventures, spin-offs and spin-ins (Link & Scott, 2005; D’Este & Patel, 2007).

If the governance structure of the university becomes integral to the nature of its entrepreneurial mission, it is possible to influence, as explained by O’Shea et al. (2007), the range of support measures developed within the universities to support new firm creation, including small university businesses, research facilities, research groups or quasi firms, liaison offices, technology transfer offices and incubators (Link & Scott 2005; Grandi & Grimaldi, 2005). Specifically, a supportive organizational structure is a central element in enhancing entrepreneurial orientation; moreover, it provides the administrative mechanism by which ideas are evaluated and implemented.

These support measures attempt to reduce the conflict that may exist between the roles of an academic and an entrepreneur (Lockett & Wright, 2005), while also allowing academic

entrepreneurs to create links with external agents and markets (Vohora, Wright & Lockett, 2004). Also, entrepreneurial universities have incorporated continuing entrepreneurship education programs, exchange programs and collaboration strategies between university and industry. These strategies allow students and/or academics to reinforce their entrepreneurial skills and capabilities, as well as to spend several months interacting with an enterprise or industrial organization in order to gain experience and information that influences their professional experience and teaching (Lee & Win, 2004).

### **Human Resource Management System**

This dimension is related to the organizational capacity and incentives. To the European Commission & OECD (2012), entrepreneurial higher education institutions continuously aim at developing their organizational capacity. To this end, incentives and rewards are in place for entrepreneurship champions, staff, students and stakeholders who are promoting the entrepreneurial agenda, and removing barriers and constraints within the organization. The aim is to empower individuals throughout the organization to own their own initiatives, engage in innovation and build personal trust-based stakeholder relationships across external and internal boundaries in search of synergy.

Academics are in a category of their own and a far cry from those employed in business. According to Daumard (2001) academics are unique insofar as they are first and foremost specialists in a scientific discipline (or experts as one would say in the corporate sector) and most wish to remain so to the end of their career. So academics tend to reason primarily as chemists or doctors, for instance, and the professional ties they have are with colleagues in the same field (whom they meet through scientific networks). But this does not imply the rejection of incentives and rewards in academic working population. Thus, those faculty members who contribute for entrepreneurial activities of the universities shall be incentivized and rewarded to encourage all faculties in entrepreneurship. In this regard, Duderstadt and Womack (2003) observation reveals that:

In most colleges and universities the professorate expects others to generate the resources necessary to support their teaching, research, and professional activities. Although faculty entrepreneurs are essential in generating the resources

needed for quality education and scholarship, in many institutions these individuals are held in low regard by the rank and file. The awards of the academy most often go to those who behave in traditional roles, depending upon others for their existence and not seeing themselves as having a responsibility to bring resources to the institution. Yet it may very well be that the most vibrant universities of the future will be institutions with faculties who are deeply engaged in the economics of education. The most productive scholars would be rewarded for that effort, and those rewards would encourage other able colleagues to follow (cited in Samuel & Hines, 2006:18).

Clark (2004:360) notes that management must take care to involve the ‘academic heartland’ in participative ways whenever possible, and that those who are best positioned to generate revenues for their university, must be strongly encouraged and incentivized to do that, for the benefit of all in their institution. He also indicates that a stimulated heartland will seek to achieve world class quality in their work, whether research or teaching. Kirby (2005) and Bernasconi (2005) contend that another key factor in the promotion of entrepreneurship in a university context is the nature of the reward systems in place, both monetary (funds, scholarships, use of resources) and non-monetary (promotion, recognition systems). Rewards help balance the costs that occur when academic entrepreneurs undertake commercialization activities, as well as, research and teaching activities (Landry, et al., 2006; Wright, et al., 2007). Rewards/reinforcement refers to the “*systems that reward based on performance, highlight significant achievements, and encourage pursuit of challenging work*” (Kuratko, et al., 2005:703). This incorporate “*rewards based on entrepreneurial activity and success*” (Hornsby, Kuratko, Shepherd & Bott, 2009: 239); the consideration of “*goals, feedback, emphasis on individual responsibility, and results-based incentives*” (Hornsby, et al., 2002:253); or “*making the ideas of innovative people known to others*” (Hornsby, et al., 1993:32; cited in Diefenbach, 2011:70). Therefore, a good HRM system dealing with organization’s incentive and control system can enhance entrepreneurial behaviors within the organization; yet, in order to reach this objective such system must include goals, feedback, emphasis on individual responsibility and results-based incentives.

The possible strategy for maximizing rewards and minimizing risks is leadership of the universities. Typically, most universities have policies that accrue centrally some portion of the

overhead from grants. That overhead can then be reallocated to meet financial needs elsewhere in the university. A similar model could be established for the distribution of “profits” generated by successful entrepreneurial ventures undertaken by the university. Therefore, the key features of an entrepreneurial university regarding HRM include recruitment, development and retention policies that accommodate entrepreneurial faculty and supplement other more standard policies that focus on research or clinical productivity and which seek to recruit applicants with broad industry experience. Key to creating an entrepreneurial culture is the recruitment of appropriate faculty engaged in activities far beyond the purview of normal research and teaching. ‘Classical’ academic entrepreneurs are those who possess publication and citation records, command a position in the university hierarchy, cite the existence of a role model and possess business education and experience university recruitment efforts thus need to emphasize these characteristics (Erdos & Varga , 2010; Meyers & Pruthi, 2011:355). It is imperative, therefore, that apart from awareness and education campaigns, success is celebrated whenever appropriate rewards and incentives are in place in order to motivate (in Meyers & Pruthi, 2011:356).

### **Entrepreneurial Culture in a University**

According to Clark (1998, 2004), the entrepreneurial culture results from the spread among any participants, link up with other ideas and be expressed in numerous structures and processes to form a consistent institutional belief. Ideas, beliefs, attitudes and values are all part of the entrepreneurial culture, and all staff must ultimately be aligned to a high degree on these aspects for good entrepreneurial results. This is especially the case when examined in relation to research. The traditional “*Mertonian*” values which encompass universalism, communalism, disinterestedness, and organized skepticism are increasingly being challenged by entrepreneurialism. For instance, disinterestedness is directly contradicted when a scientist or university has a financial interest in the outcomes of research. Communalism (the sharing of results through publications) can also be compromised when scientists withhold results in order to gain advantage in the marketplace (Geiger, 2008).

Currently universities around the world are doing various activities in order to develop entrepreneurship. These activities include the activities of education, research, promotion, counseling, entrepreneurship centers and offices, development centers and extracurricular

activities (Kilidbari1, 2013). The degree of attention given to importance of university entrepreneurialism can be related to the nature and rate of expansion of entrepreneurial activity (continuing education, R and D, technology transfer, consultancy, etc.), and a spectrum may be observed from situations where this type of activity is really quite marginal to the institution, and has not permeated the culture to any significant degree, to situations where it is very extensive and part of the lifestyle. Logically, the larger the volume of such work, the greater the likelihood of a general shift in culture, though the expansion could be contained within particular parts of the institution, either in parts of Clark's "heartland" or confined to the "developmental periphery" (Davies, 2001).

Yet, this new culture often appears to be in contradiction with the traditional ones. Clark notes that culture change takes time and is necessarily 'incrementally fashioned' to eventually create its own perpetual momentum or dynamism to succeed as an entrepreneurial university. An organization's culture, according to Daumard (2001) can be identified in a number of ways. The leading aspect relates to the organizations in-house values, the unwritten rules which its members follow – consciously or not – and which determine their patterns of behavior. So within that organization there may be a spirit of competition or, conversely, solidarity, of bonding or keeping one's distance; it may be customary for people to comply with procedures or, on the contrary, go about their work as they choose. This aspect of an organization's culture heavily influences how its members define and live their working lives, e.g., being the best, coming first, and so on.

The conservatism of the corporate culture and the lack of entrepreneurial talent act as barriers to entrepreneurship development in universities (Kirby, 2006). Hence, to encourage entrepreneurial behavior in universities, a dynamic entrepreneurial culture must first be established through strategic focus and organizational structuring that is aligned with strategies. Thus, entrepreneurialism challenges the existing culture at universities, which were built up by decades. On how do managers build such integrated cultures, the practical advice appears to be in the direction of attempting to make all levels of the university committed to and active towards the entrepreneurial goals. There is some doubt about how easy this might be for middle level managers to do (Slaughter & Leslie, 1997). An entrepreneurial culture, in particular, one that validated "*social entrepreneurship*" would emphasize an institutional commitment to innovation, creativity, collaboration, service, and civic engagement while also encouraging the pursuit of

ventures that increase the resource base of the university. An entrepreneurial spirit encourages creativity and innovation and builds empowerment into the university. Faculty and staff begin to consider that they have a responsibility to create resources, not just to claim the existing resources of the university (cited in Samuel & Hines, 2006:22). This implies that an entrepreneurial culture would put a high value on innovation and creativity and would encourage the design and implementation of enterprises that can generate revenue, thus creating more and more components of the university that would become “tubs on their own bottoms” i.e., self-sustaining with regard to resources needed to enhance the teaching and research activities of those units (cited in Samuel & Hines, 2006:19).

### **Entrepreneurial Leadership Behavior**

Entrepreneurial leadership is described as visionary leadership with inherent focus on opportunities building/creating, creative destruction/rearrangement, dynamic stake, staged investment, medium term and has an exit strategy (Thornberry, 2006; in Yusof, Siddiq & Nor (2012). Unlike firms, state-funded universities owe their existence to a supervisory government body. As long as the university continues to function, the influence of the leadership remains very strong if not predominant through the guidelines and resources it provides, but also through its impact on labor relations, structures and administrative rules and regulations. Universities do have their ‘local’ authority, namely the President and Board of Governors (or equivalent). They are responsible for running the institution (Daumard, 2001). This is related to Clark’s (1998) elements of ‘strong central steering core’. Strong university leadership capacity is very important in the creation of entrepreneurial university and in the process of university transformation. If university leadership doesn’t accept the concept of entrepreneurial university, it is unlikely that transformation to entrepreneurial university will take place. Strong leadership relates to creation of governance structure which motivates and encourages all parts of the university to proactive and enterprising behavior, and achievement of team goals ahead of realization of personal goals, i.e., the ‘we’ versus ‘I’ (Petrica & Salihovic, 2008).

Burykhina, (2009:41) argued that a clear and accurate formulation of a university mission, shared by the majority of administration and staff workers willing to implement it; enhanced efficiency of strategy planning, management and implementation of university development programs;

unified tactics of university management and strategy goals and directions; an organizational structure adjusted to solve strategic problems via more adequate interaction with external environment, as well as tactical goals within the university are all the outcomes of entrepreneurial leadership.

The type of strategy that the university leadership pursues in practice is important to entrepreneurship especially, if a strategy combines strong leadership with decentralized degrees of freedom. In particular, intellectual and visionary leadership is needed for two major reasons: first to remove ideological barriers on the ‘concept of a university associated with the entrepreneurial paradigm’; and second ‘to carry this through the particular context of the nature of the university itself and its existing culture, mission and strategy’ (Gjerding, et al., 2006:14; Gibb, et al., 2009:22).

According to Yusof et al. (2012), entrepreneurial academic leaders exhibit behaviors such as encouragement of the bending/circumvention of university rules when they get in the way of achieving strategic goals and initiatives, get things done even if it means going around the system, willingly move ahead with a promising new approach when others might hold back, promote an environment where risk-taking is encouraged, encourage others to outwit and outmaneuver the university’s bureaucracy, quickly utilize different approaches to overcoming obstacles when the initial one does not work, demonstrate an entrepreneurial orientation at work, actively fight the encroachment of bureaucracy in the university, and, willingly listen to suggestions from others about how to do things differently.

Moreover, leadership and governance can stimulate innovation of all kinds in an organization that is held together by a shared vision and culture, not overloaded with managerial systems, constantly striving for its autonomy via the entrepreneurial management of its various interdependencies with stakeholders (European Commission & OECD, 2012). Hence, positive and responsive leadership is what maintains a dynamic and successful organization, particularly in times of uncertainty, unpredictability and complexity.

Likewise, increased leadership and management are necessary to redirect its efforts towards new priorities (Olsen, 2007). Another important determinant of entrepreneurial orientation is considered to be management support that represents the willingness of managers to facilitate and

promote entrepreneurial activities in the firm. In other words, it represents the concrete actions undertaken by entrepreneurial oriented managers, such as championing innovative ideas and providing resources necessary to realize them (Garofano & Guerriera, 2009). Relating to management support, Stevenson and Jarrillo (1990) argue that entrepreneurial behavior is positively influenced by those attitudes and actions aimed at training and trusting individuals within the firm to detect opportunities.

The study of factors that influence managers' disposition to support entrepreneurship is also of interest to Zahra, Neubaum and Huse (2000) which focus on medium sized firms. It examined two possible sources of influence namely, firm's ownership structure and its governance system. Specifically, the study suggests that senior executives' support of entrepreneurial behaviors will be higher when they own stock in their companies, or when an important shareholder who appreciates the value of long-term investments encourages executives to undertake entrepreneurial activities. Moreover, the results from the study show that a strong, independent and motivated board of directors can promote entrepreneurship by challenging executives to support innovation and venturing, both on domestic and international markets.

Institutional leaders may also encourage entrepreneurial behavior among faculty by creating competitively awarded internal funding pools, which can be supported by existing resources of departments. Similarly, decentralized budgeting systems may encourage entrepreneurship through making each organizational unit on a campus a quasi-independent entity and by distributing resources (effectively, revenues) to units to enable units generate financially robust products and services (Leslie & Slaughter, 1997; Priest, et al., 2002; in Hearn, 2003:14). Significant evidences have been also provided (Kanter, 1984; Ginsberg & Hay, 1994) for the role of middle managers in creating an environment favorable to innovation and entrepreneurship. In particular, scholars suggest that middle management can stimulate interest in entrepreneurial activities and also influence their subordinates' commitment to these activities once they are initiated.

#### **4.8.2 Environmental Entrepreneurial Factors**

External environment has been identified by scholars as a source of opportunities and threats that can influence in several ways the firms' entrepreneurial orientation. Zahra (1993) characterizes

two categories of environmental antecedents: the first, including dynamism, technological opportunities, industry growth and demand for new products, viewed as favorable for entrepreneurial orientation (also defined munificent); the second, including unfavorable change and competitive rivalry, considered unfavorable (hostile). Apart from internal factors influencing the emergence of academic firms, according to Koschatzky and Hemer (2009: 194), regional environment plays a crucial role in promoting and facilitating development of academic entrepreneurship. Among regional factors one can point out the system of incubator organizations and institutions promoting entrepreneurship (technological parks, clusters, centers of technological transfer), the quality of government and self-government measures of entrepreneurship support, the efficiency of financing institutions, as well as entrepreneurial-friendly climate, determining positive attitudes of bureaucracy and society towards entrepreneurs (in Godowska, 2012:184).

Among the several researches that have investigated the role of environment in entrepreneurship, the study of Dickson and Weaver (2008) considers entrepreneurial orientation as a response to institutional forces. Specifically, the authors suggest that firms will be more likely to implement an entrepreneurial orientation when it is seen as a justifiable response and associated with the normative, regulative and cognitive aspects of the institutions that make up the environment of the firm (Dickson & Weaver, 2008).

The influence of environmental variables on the relationship between EO and firm performance has been also examined in several studies in the past two decades (Davis, 2007). Recent literature has suggested the continued examination of environmental variables as moderators of the EO performance relationship (Covin, et al., 2006; Gaudici, 2013). Some details about each construct in the environmental dimension are briefly introduced below.

### **Environmental Munificence**

It refers to the scarcity or abundance of resources available in an environment and demanded by one or more firms (Dess & Beard, 1984; Dess, et al., 2007). From the firm level of analysis, the level of munificence is directly related to a firm's ability to acquire resources from the environment and may impact firm performance (Davis, 2007). Santos (2009) posited munificence

as the key factor in determining the ability of the environment to sustain growth. Munificent environments enable a greater amount of organizational flexibility with reduced risk.

Corbo (2012) also suggested that the abundance or scarcity of resources available in a given environment is directly related to an organization's generation of slack resources. Zahra and Covin's (2005) original two factors of dynamism were described as simple-complex and static-dynamic. These were later reanalyzed in Dess, et al. (2007) reframing of environmental factors as they distinguished the two as environmental dynamism and complexity.

### **Dynamism**

Environmental dynamism can be seen along different aspects such as the existence of permanent and unpredictable changes in: (i) rules and policies which are developed for the organization by external officials and responsible organization; (ii) financial resources and the budget of the organization; (iii) demands and expectations of people from organization; and (iv) information technology as well as required information of the organization (Yazdani, 2011). Dynamism is comprised of numerous variables – for example, speed in which the environment is changing (stability-instability), turnover rates, and predictability-unpredictability; each aspect contributing to uncertainty. Miller and Friesen (1983) defined dynamism as the rate of change and innovation in an industry as well as the uncertainty or unpredictability of the actions of competitors and customers. Organizations competing in environments where high levels of dynamism are present must have the flexibility to adapt to a changing environment to ensure organizational survival (Mthanti, 2012). A quickly changing environment increases risk and unpredictability, but is a common characteristic of many industries (Davis, 2007).

A lower level of dynamism in an environment indicates possible slowing of the economy or, under most circumstances, an industry that is well established and non-turbulent. Organizations operating in a more stable environment have the luxury of added stability and predictability of environmental change, as well as greater ability to react and change with the environment. However, according to Armesh, et al. (2014: 122) organizations in today's world are operating under rapid changes, increasing complexity and competition and living in a dynamic and uncertain environment. The speed of these changes is in such a way that one might not draw its curve in

time dimension. The more dynamic environment, technological opportunities, strategic orientation and new products demand, therefore, call for more entrepreneurship reinforcement.

### **Environmental Hostility**

It has been a commonly considered factor in EO literature. Early research examining the relationship between hostility and entrepreneurship tended to argue for a positive relationship between hostile environmental conditions and entrepreneurial behavior (Khandwalla, 1977). It is argued by Antoncic and Hisrich (2001) that entrepreneurial measures as a response to hostile environments could not go with reduced appetites of institutions rather through thinking and operating for strong entrepreneurial coping mechanisms and improving internal capabilities. Of course, it is to be noted for the disputation like Zahra (1991) who suggest that both munificent and hostile factors may lead to increase entrepreneurial activities; and who also pointed out as hostile environment creates threats for a firm, thus, stimulating the pursuit of entrepreneurship.

In many ways, hostility is the counter-munificence measure as it represents the intensity of competition and scarcity of resources in a firm's environment. It has been commonly used to describe the unfavorable external forces in an organization's environment. Davis (2007) defined hostility as the degree of threat to the firm posed by the multifacetedness, vigor and intensity of the competition and the downswings and upswings of the firm's principal industry. As indicated by its definition, hostility poses a threat to the viability of a firm (Kroeger, 2007) and has been examined in relation to firm performance and the competitive behavior of a firm (Corbo, 2012). Hostility has also been tested to be positively related to entrepreneurial orientation (Miller, 1983; Zahra, 1991; Sciascia, Naldi & Hunter (2006), since it induces innovations in order to satisfy the multiple needs existing in the market. This suggests that activities such as innovation within the organization are negatively impacted by the presence of a hostile environment, where competition is high and resources are scarce. While this theoretical argument supports the findings of a negative effect of hostility on the EO-performance relationship, other research has produced inconclusive findings and even a curvilinear relationship (Covin & Slevin, 1989). For instance, Rauch, et al. (2009) attributed the inconsistent findings of past research and found that there is no definitive evidence of the influence of hostility on the EO performance relationship.

## **Environmental Heterogeneity**

Environmental heterogeneity is defined as the existence of multiple segments and difference of customers' needs and expectations in those segments (Zahra, 1991). Environmental heterogeneity is to mean environmental complexity. Environmental complexity can also be considered along the aspects of the impact of temporary and diversified social, political, economic factors such as on: (i) organizational objectives; (ii) organizational planning and decision makings; (iii) financial resources and required budgets of organizations; and (iv) required human resources for organizations (Yazdani, 2011; in Armesh, et al., 2014: 116). In relation, Antonic (2007) has also argued that the managers of governmental organizations always find themselves between political decision makings and practical facts so they are always coping with environmental complexity, in particular whenever compatibility is lacking. In these situations, the management may be encountered by unsolved puzzles. Another environmental complexity factors for the governmental organizations are the economic facts such as limited budgets that demand institutions to offer more services with the limited budgets (in Armesh, et al., 2014: 116).

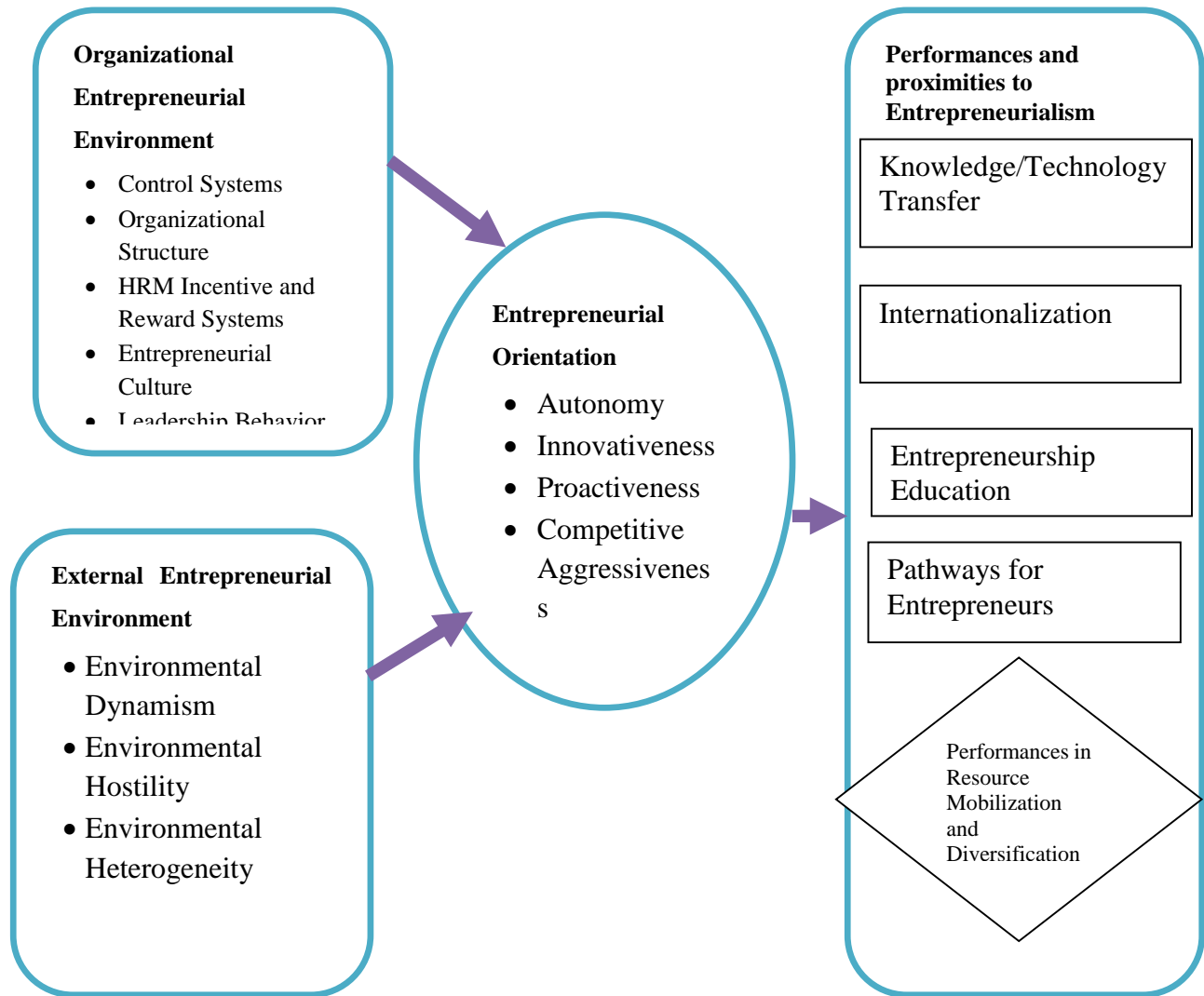
In their study on intrapreneurship, Antonic and Hisrich (2001) suggest that both munificent and hostile factors may lead companies to increase entrepreneurial activities. Environmental heterogeneity, which was defined as the existence of multiple segments and difference of customers' needs and expectations in those segments (Zahra, 1991), has also been tested to be positively related to entrepreneurial orientation (Miller, 1983; Sciascia, et al., 2006), since it induces innovations in order to satisfy the multiple needs existing in the market.

In summary, this study has paid great importance to the understanding of different theories and models marking the development and importance of entrepreneurship vision, mission, and implementation strategies in the field of higher education. The extensive review that has been carried out is used to develop the conceptual model for this study, as shown in Figure 4.3 below. This conceptual model somehow resembles with the works of Garofano and Guerriera (2009: 90), and Beliaeva (2014:47). However, this framework is different because it is not only the synthesis of the literature on entrepreneurial orientation, organizational and environmental antecedents and consequences, but also including entrepreneurial performances like knowledge transfer, internationalization, entrepreneurial education, pathways for entrepreneurs, resource mobilization

and diversification issues. Consequently, the framework is used to develop appropriate research design, methods and instruments of the study.

Figure 4.3

Conceptual Model for the Study



## **CHAPTER V: RESEARCH METHODOLOGY**

### **5.0 Introduction**

This chapter deals with the methods and procedures used in conducting the study and organized into different sub-sections. The sub-sections highlight the different research philosophies and indicate the paradigm applied in this research. Dictated by the selected paradigm, a brief account of various applicable research approaches, operationalization of variables, instruments of data collection and the validation processes are briefed, followed by the procedures of data administration, data processing, and data analysis. Finally, accounts of ethical considerations are presented.

### **5.1 Research Paradigm**

Research projects are guided and governed by some underlying beliefs and assumptions (Guba & Lincoln, 2005; Merterns, 2007). The set of beliefs relates to the existence and nature of reality (ontology); the perceived relationship with the object being studied, which is considered real (epistemology); and the process and means of knowing something considered real (methodology). Ontology, epistemology and methodology are fundamental principles and core components of a research paradigm (Guba & Lincoln, 2005). Ontologically, a researcher can take the stance that the phenomenon under investigation has an objective reality that is independent of the researcher's method of inquiry or that it has a subjective and impressionable reality that exists only through human action. Epistemology is concerned with the philosophy of how knowledge about reality should be acquired. The focus is on the relationship between the researcher (knower) and the researched (the would-be known) about which empirical data are collected (Guba & Lincoln, 2005). Therefore, a researcher's epistemological view frames his or her interaction with what is being researched, which also depends on one's ontological view. The main issue of epistemology is the question of objectivity in producing what is regarded as knowledge; that is, whether a researcher should be close to the researched or should be neutral regarding what is being researched. Epistemologically, knowledge is considered constructed, either by following hypothetico-deduction reasoning (which is assumed non-value laden) or by following value-laden non-hypothetico-deduction reasoning. Scholars in the field of comparative education, for instance, Rust, et al. (1999), tend to rely on similar philosophical assumptions. Accordingly,

concerning the nature of reality, comparative educators would tend to see reality as somewhat subjective and multiple, rather than objective and singular. Epistemologically, comparative educators would tend to interact with that being researched rather than acting independently and in a detached manner from the content. Axiologically, comparative educators would tend not to see research as value free and unbiased; rather, they would accept the notion that their research is value laden and includes the biases of the researcher (Bray, 2007).

The third and final aspect of a research paradigm to be considered is methodology. Methodology refers to how a researcher approaches the conducting of his or her empirical research in search of knowing the phenomena (Guba & Lincoln, 2005). It relates more to the strategic approach rather than the specific methods and techniques employed for data collection and analysis. Methodologically, one can employ the qualitative, quantitative or mixed-method approach in conducting the research. Thus, a paradigm is determined based on the position of the researcher towards these three components (Guba & Lincoln, 2005). Generally, there are three major paradigms: positivism, interpretivism and critical realism. A researcher's paradigm (positivist, interpretivist or critical realist) determines whether the researcher is an independent observer or part of the researched subject. It also constrains the type and nature of the research questions posed, which in turn determines the appropriate research strategy to adopt and the methods of evidence collection, analysis and inference.

### **Ontological and Epistemological Positioning**

Ontologically, this researcher believes that the entrepreneurial orientation of leadership members of both universities and the corresponding reports they made is able to indicate the state of entrepreneurialism in the institutions. If gaps are to prevail, the documents and the interview schedules allow filling it. *Epistemologically*, the researcher and researched object (that is, reported entrepreneurial orientation, performances, and the organizational and external entrepreneurial environments are not considered independent because, the researcher is a student of Addis Ababa University, and a faculty member of BDU, which are to be compared following the procedures. Therefore, the researcher was guided by the pragmatic paradigm, whereby the phenomena was explained on the basis of the context using hermeneutical interpretation of the secured qualitative data on the one hand, and the rigorous procedures to analyze the quantitative data on the other.

The fact is that even though the researcher was not involved in the implementation of entrepreneurial activities, it is difficult to present and analyze data without exerting any influence over the project. However, the quantitative data are believed to prevent bias on the part of both the researcher and the study subjects.

### **Methodological Choice**

Since the choice of a research methodology and the tactical decisions depend on the ontological and epistemological choices already made and the objectives of a particular study (Guba & Lincoln, 2005; Hall and Howard, 2008), the research methodology employed for this study was a mixed-method strategy. Deciding to go the route of mixed research means willing to take a pragmatic position where there is no need to view any single method dogmatically. It allows being open-minded, flexible, and creative in adhering the research practice (Johnson & Christensen, 2012). Therefore, this study has followed the mixed research method.

Mixed methods research has become an increasingly used and accepted approach to conducting social research and characteristically it integrates quantitative and qualitative approach within a single project and uses data which are mutually illuminating (Bryman, 2012). According to Creswell (2012:22):

The core argument for a mixed methods design is that the combination of both forms of data provides a better understanding of a research problem than either quantitative or qualitative data by itself. Mixed methods designs are procedures for collecting, analyzing, and mixing both quantitative and qualitative data in a single study or in a multiphase series of studies.

Johnson and Onwuegbuzie (2004) in Johnson and Christensen (2012) argued that mixed-method research refers to ‘the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study’. From these definitions, the special feature of mixed-method research is the premise that the mixing of quantitative and qualitative approaches provides better insight than can be achieved using either of the two approaches alone. They have also distinguished among three subtypes of mixed methods research—qualitative dominant, pure mixed, and quantitative dominant. Most

current classifications address at least four of these core issues: (1) priority (QUAN or QUAL dominant or equal); (2) implementation (parallel, sequential, conversion, multilevel, or combination); (3) integration; and (4) theoretical perspective (implicit or explicit and related to purpose or research questions). This study followed the pure mixed variety equally.

Furthermore, Greene, Caracelli, and Graham (1989) in Johnson and Christensen (2012) proposed a framework consisting five broad rationales to be used selectively in accordance to the purpose of mixed research designs namely: (1) *triangulation*, to be applied when the researcher seeks convergence and corroboration of results from different methods studying the same phenomenon; (2) *complementarity*, to be employed when the investigator seeks elaboration, enhancement, illustration, and clarification of the results from one method with results from the other method; (3) *development*, in which one data set provides a supportive secondary role; (4) *initiation*, refers to discovering paradoxes and contradictions as well as providing different perspectives that may lead to reframing the research question or the results; and (5) *expansion*, which is applied when the investigator attempts to expand the breadth and range of inquiry by using different inquiry components. Therefore, considering of all advantages, a mixed method is chosen and applied in this study especially for the triangulation and complementarities purposes.

## **5.2 Research Design**

The choice of a certain methodological design depends largely on the research focus and questions in order for the conclusions and findings to be considered credible (Opie, 2004). For Conrad and Serlin (2006:377) design “*is concerned with the assumptions underlying the manner in which the study is constructed to pursue inquiry about the phenomenon...and determines whether the research question can be answered adequately through the manner in which the data was collected*”. Given the holistic description of this study, a case study design is employed. Specifically, a comparative case study approach is used. The most common use of the term ‘case’ associates the case study with a location, such as a community or organization. The emphasis tends to be upon an intensive examination of the setting. There is a tendency to associate case studies with qualitative research, such as participant observation and unstructured interviewing, because these methods are viewed as particularly helpful in the generation of an intensive, detailed examination of a case. However, case studies are also the frequent sites for the employment of

*both quantitative and qualitative* research (Bryman, 2012). According to Dimmock (2007), the focus of comparing educational organizations and institutions in and across societies has been diverse, ranging from educational policy and system-wide structures at the macro level to particularities of curriculum, pedagogy, leadership, management and governance at the micro level. Comparisons are concerned with mapping similarities and differences between aspects of education in different places and countries. As well, a comparative design entails studying contrasting cases using more or less identical methods. It embodies the logic of comparison, in that it implies one can understand social phenomena better when comparisons are made in relation to two or more meaningfully contrasting cases or situations. The comparative design may be realized in the context of either quantitative or qualitative research. One of the more obvious forms of such research is in cross-cultural or cross-national research (Bryman, 2012). However, in this study, both cases are universities in the Federal Democratic Republic of Ethiopia (FDRE) whereby comparisons are made under the common contexts. However, by studying comparatively, as opposed to undertaking a single case study, it could become possible to a greater extent to distinguish necessary conditions from contingent ones. Further, in this comparative case study, mainly quantitative data is used to identify and describe the entrepreneurial orientation, entrepreneurial performances and the internal and external entrepreneurial environments of universities. Further, qualitative approaches were mainly followed in the attempts to show the proper locations of the case study universities along the traditional-entrepreneurial spectrum and diversities of performances used to generate resources. However, triangulating and complementing one set of data with the other was the major consideration made in the study.

### **5.3 Empirical Setting**

Empirical Setting: Addis Ababa University (AAU) and Bahir Dar University (BDU) are chosen to this entrepreneurial research project because Addis Ababa University (AAU), which was established in 1950 as the University College of Addis Ababa (UCAA), is the oldest and the largest higher learning and research institution in Ethiopia. Likewise, BDU is among the next oldest and largest universities, especially seen, in terms of its organizational origin: the Academy of Pedagogy and Polytechnic Institute. The first step to establish higher education in the country was made with the creation of Trinity College, soon renamed the University College of Addis Ababa (UCAA). It was later renamed as Haile Selassie I University in 1962 and then Addis Ababa

University in 1975 after a regime change. Since its establishment, AAU has made a remarkable contribution to the country, particularly in supplying high level skilled man/women-power and professionals in various key areas of development at times when no national professionals were available. Until very recently, it has been the only source of highly qualified professionals in the country. Its role and impact in the country's progress in various spheres of development is far-reaching, with outstanding Ethiopians serving in international organizations within and outside the country.

The service it has rendered in the training of high level skilled manpower and professionals in various key areas of development is unprecedented. Emerging with an enrolling capacity of 71 students in 1950, AAU has now a total enrolment of over 51,500 students and about 7,000 staff members (academic and support). It runs 70 undergraduate and 225 graduate programs (AAUg, 2013:1). Since its establishment, AAU has been expanding its teaching, research and community services programs. Furthermore, the University has been undertaking various reform schemes in order to cope up with and respond to the fast changing national and international educational landscape. At present (following its recent restructuring of institutional setup and governance system), the University has ten colleges, three institutes that run both teaching and research, and six research institutes that predominantly conduct research. Within these academic units there are 55 departments, 12 centers, 9 schools, and 2 teaching hospitals. In line with its steady expansion and the various reform schemes, the University is upgrading its capacity in order to pace with the rapidly changing national and international social, economic, and political circumstances (AAU, 2013g:1).

Bahir Dar University was established by merging two former higher education institutions; namely the Bahir Dar Polytechnic and Bahir Dar Teachers' College. The Bahir Dar Polytechnic Institute, which has transformed itself into Technology and Textile institutes, was established in 1963 under the technical cooperation between the Government of USSR and the Imperial Government of Ethiopia. The institute was a premier institute in producing technicians for the nation. The Bahir Dar Teachers' College, by then known as the Academy of Pedagogy, was established in 1972 by the tripartite agreement of the Imperial Government of Ethiopia, UNESCO and UNDP and started actual work in the following year under the auspices of the Ministry of Education and Fine Arts. Its general objective was to train multipurpose primary education

professionals capable of adopting primary education to rural life and rural development. Its specific objectives were to train primary school teacher trainers, supervisors, educational leaders, adult education organizers and community development agents. The two institutions of higher learning were integrated to form the Bahir Dar University following the Council of Ministers regulation no. 60/1999 GC. The University was inaugurated on May 6, 2000. Bahir Dar University is now among the largest universities in the Federal Democratic Republic of Ethiopia, with more than 45228 students in its 5 campuses, 57 undergraduate and 39 graduate programs. Bahir Dar University has four colleges, three institutes, three faculties and one school (<http://www.bdu.edu.et/page/brief-history-bdu>).

According to the Carnegie Classification of Institutions of Higher Education, research universities typically offer a wide range of baccalaureate programs, and are committed to graduate education through the doctorate. If they award 50 or more doctoral degrees per year across at least 15 disciplines, they are classified as extensive research universities. If they awarded at least 10 doctoral degrees per year across three or more disciplines, or at least 20 doctoral degrees per year overall, they are classified as intensive research universities (Carnegie, 2001:1). Meanwhile, AAU can be classified among the extensive research universities while BDU is at the eve of intensive research universities.

#### **5.4 Target Population of the Study**

This study has considered the University as a Unit, and Business, Engineering/ Technology fields as sub-units. In particular, the targets of study were from the university level, the senior and middle academic and administrative management members and key informants; from colleges of business and economics and institutes of engineering, leaders (as parts of middle level managers of the universities too); from levels of departments or units in the respective colleges and institutes, heads (but representing lower leadership positions) are taken as the targets of the study and the sources of data. Senior administrators are included because they are believed to be those who set the tone for organizational entrepreneurship. Further, middle and lower managers and key informants are believed to represent multiple points of entry for any entrepreneurial activities within the universities and believed to be more informative of the technical aspects. Moreover, entrepreneurial phenomena that are found to be examples and often seen as ‘best practice’ cases

(Patton, 2002; Yin, 2009), relevant documents, entrepreneurial events and incidents, which run by universities such as conferences, ceremonies for acknowledgements, exhibitions, and workshops related to entrepreneurial issues, rankings, fund-raising ceremonies etc...were made sources of information.

### **5.5 Sample Population and Sampling Strategies**

Regarding the sampling strategy, the suggestions of Wilmot (2005) was considered and there were a series of questions the researcher used to ask right at the outset namely: What are the research objectives? What is the target population? Who should be included in the sample, etc...? With each and every question, the sampling strategy was determined to fulfill the study's requirements.

Basically, entrepreneurship is rarely applicable in the same way among different disciplines; as some disciplinary units are more progressive than others. Therefore, it sounds reasonable to investigate entrepreneurship on the university level and deeper on the specified unit level, where academics carry out entrepreneurial activities. Meanwhile, as the method to this study was a mixed approach, of the sampling techniques, convenience sampling and purposive sampling techniques of the nonrandom category and random sampling were employed. Certainly, in the field of organization studies it has been noted that convenience samples are very common and indeed are more prominent (Bryman, 2012:202). Convenient sampling is also used when researchers include people in their sample who are available or volunteer or can be easily recruited and are willing to participate in the research study, or when the researcher specifies the characteristics of a population of interest and then tries to locate individuals who have those characteristics (Johnson & Christensen, 2012).

In all cases, 46 subjects from each university were drawn as subjects to provide the necessary data. The specific subjects were drawn as follows: (i) from the university level, academic and administrative office holders mainly vice presidents or representatives (senior managers), and middle management members such as directors, experts and key informants who could be helpful to determine the boundaries of entrepreneurial activities, and to identify the actual entrepreneurial cases in the respective universities ; and (ii) from the leadership of the colleges of business and economics and institutes of engineering down to the lower levels - faculties/schools/ departments under the belief that those sections are with people who could be informative about the

entrepreneurial activities of the respective units and universities. In addition, information was secured from purposively considered entrepreneurial phenomena that were found to be examples and often seen as ‘best practice’ cases, relevant documents from those sampled sections, and entrepreneurial events and incidents. The target and sample distribution are presented in Table 4.1 below.

Table 5.1

The Distribution of Target and Sample Population and Sampling Strategies

No.	Target Population	Description	Sample Population from AAU & BDU Sampled Population	Sampling Strategy
1	Top Management	Heads/ Representatives	Office of Vice Presidents	Purposive Sampling
2	Middle Management	University Level Directorates/ Representatives	Office holders within the Directorates under the Offices of Presidents and Vice Presidents	Random Sampling
		Deans and Directors at College/Institute Levels	Colleges of Business and Economics Institutes of Technologies Directors in the Respective Units	Purposive Sampling
3	Lower Management	Heads of academic units in the sampled colleges and institutes	Heads / Representatives of faculties, schools, and departments within the sampled colleges and institutes; Entrepreneurial Experts and Key informants	Random Sampling
		Enterprises	Heads of Endowments, enterprises, services, centers and sections	
4	Documents	Hard and Soft copies	Documents and websites related to Curriculum, Planning, Budgeting & Finance, HRM, Facilities, Projects, Archives management...	
5	Unique Entrepreneurial cases, events and incidents	Unique Entrepreneurial Cases	Typically exemplary entrepreneurial activities	Purposive Sampling
		Different events in entrepreneurial nature	Events which may run by universities such as conferences, ceremonies for rewards, exhibitions, workshops related to entrepreneurial issues, rankings, fund-raising ceremonies, meetings etc.	

## 5.6 Operationalization of Variables

The process of operationalization involves moving from the abstract concepts to empirical level. It helps to identify the main dimensions of the concepts, which are not directly measurable, and to present them in the terms or items which the researcher is able to observe and measure (Mueller,

2004). Thus, the variables involved in this study include: (i) entrepreneurial orientation, (ii) entrepreneurial performances; iii) organizational entrepreneurial environments and (iv) external entrepreneurial environments. Each variable consists of different numbers of constructs (see Table 4.2 below). Regarding the roles of variables in university entrepreneurialism, the first two were examined as the outcomes (dependent variables) of university entrepreneurialism, while the latter two as antecedents. However, all have also served as dependent variables during university-based comparisons. Moreover, the interactions among the variables were tested whereby each variable used to play either the independent or dependent roles.

Table 5.2

Variables, Instruments, and Sources of Instrumentation

Variables	Elements	Instruments	No. of Items
Entrepreneurial Orientation	Autonomy		6
	Innovativeness		7
	Proactiveness	Questionnaire	7
	Competitive Aggressiveness	Documents	6
	Risk Taking		5
External Entrepreneurial environment	Dynamism		5
	Hostility	Interview	6
	Heterogeneity	schedules	4
Organizational Entrepreneurial Environment	Control Systems		8
	Organizational Structure		7
	Human Resource Management Systems		7
	Entrepreneurial Culture		8
Entrepreneurial Performances	Entrepreneurial Leadership Behavior		6
	Knowledge Transfer/ Exchange		10
	Internationalization		16
	Entrepreneurial Education		10
	Pathways for Entrepreneurs		7
Entrepreneurial Performances in resource mobilization and diversification	Entrepreneurial Proximity of	Documents	
		Interviews	
		Structured observation	
Total Items			125

## 5.7 Data Collection Instruments

The study used four types of data collection instruments: questionnaires, documents, interviews and observations.

- A. Questionnaire: The questionnaire instrument for the study was designed to capture the perceptions of the sampled respondents regarding entrepreneurial orientation, organizational/internal entrepreneurial external environments, and entrepreneurial performance. Regarding the nature of the questionnaire, the recommendations made by scholars for social science researchers on the use of existing, tested scales for construct measurement has got attention. This is recommended, mainly to ensure comparability of results and to avoid time and resource intensive item development (Kirchhoff, Kuhnt, Lipp & Schlawin, 2003, 19; in Diefenbach, 2011:94). However, in most cases, no such scales suited the university sector setting. Therefore, the study has adjusted existing scales and developed new ones following recommended steps for scale development by Spector (1992) : define construct, design scale, pilot test, administration as well as item analysis, and validate and norm (cited in Diefenbach, 2011:94).

The preliminary questionnaire was administered for quantitative pretest for a random sample of 10 managers. The pretest is thus applied to the relevant group and the sample size was found to be enough to make meaningful inferences. The resulting data were analyzed descriptively. The next step consisted of an extensive qualitative pretesting phase with personal interviews to 3 academics with a certain leadership experiences in a university. The interviews were mostly semi-structured and included a short introduction, verbal descriptions of the constructs, and an intensive testing of the items' comprehensibility. In the first interviews, the researcher has also asked interview partners for additional items describing the specific constructs. Based on these results, adjustments were made to the items (e.g., by making items more relevant) and by incorporating additional reliable items. The final questionnaire contained 125 items i.e. the variable of entrepreneurial orientation 31 items; while external and internal entrepreneurial environments 51 items, and entrepreneurial performances 43 items. The items used a 5-point Likert scale to draw the level of observation and agreement of the respondents.

- B. Interviews: The main reasons for choosing interviews as instruments in this study were that their importance to generate rich data, the easiness to gaining insight into the interviewees' perceptions and values and the convenience to generate data for analyses in different ways. So, face-to-face interviews, which are suggested to be important to gain insight and understand phenomenon in a study (Ritchie & Lewis, 2003) were among the set of instruments administered. Of three categories of interviews which can be used in research: the *structured interview*, the *semi-structured interview* and the *unstructured interview*, the semi-structured variety was used for the subjects of this study at all levels. The instruments were adapted from various entrepreneurial university assessment instruments like the 'Entrepreneurial Scorecards' (NCEE, 2013). The interview instruments were administered to members of the sample population until the saturation of information was attained. Each interview was recorded and transcribed with codes.
- C. Document Analysis: The purpose of this instrument was to obtain data about the types and forms of entrepreneurial activities in teaching, research and community service areas of universities; and to gain data about the types, streams, and magnitude of resources other than the government grant. For this end, relevant secondary sources (corpus of documents) such as the university's transformation strategy, annual and quarterly reports, and syllabuses indicating about entrepreneurship education, the agreements and memorandum of understandings, websites, and institution's newsletters were considered.
- D. Observations: A structured observation checklist consisting points for observation was prepared to look for the behavior of members of the setting (group, organization, community etc.) and to elicit the meanings attributed to the empirical setting. This instrument was employed, in particular, to explore about the entrepreneurial performances of the case study universities in general, and the initiatives in resource mobilization in the respective settings in particular. This is, according to Bryman (2012), a kind of non-participant observation designed to be used to describe a situation in which the observer observes but does not participate in what is going on in the social setting. Structured observers are usually non-participants in that they are in the social setting being observed but rarely participate in what is happening.

## **5.8 Instrument Validation and Measurement**

Validity and reliability are properties of a measurement instrument that gives the research community confidence in the results of the study (Field, 2009). A valid and reliable measure ensures that the data being gathered is objective, represents the underlying phenomena accurately (Straub 1989) and that the statistical conclusion and generalization drawn from the statistical analysis are warranted, unbiased and stable (Gefen, Straub & Boudreau, 2000). Validity measures whether an instrument actually measures what it sets out to measure. According to Lewis, Templeton and Byrd (2005), validity represents the degree of accuracy with which the instrument is measuring the construct it is purporting to measure and the uniqueness of the measurement instrument from measures of other constructs. Reliability, on the other hand, measures whether an instrument is consistent across different situations or on repeated occasions (Field, 2009). The procedures followed to ensure the validity and reliability of the measurement instrument; was based on Straub, Boudreau and Gefen (2004), Lewis, Templeton and Byrd (2005) and the suggestions of Hair, Black, Babin, Anderson & Tatham, 2010).

### **Validity**

With the view of ensuring content validity, this study defined the domain of constructs comprising the theoretical model clearly and unambiguously. Existing literature was reviewed in depth and where appropriate, items were taken from the existing instruments and adapted in the light of the preliminary case study findings conducted prior to instrument development; pulled a large number of items initially; conducted a pre-test using an expert judge survey to rate the relevance of the items to the dimensions and constructs purportedly being measured. For the purpose expert judgments from three professors were secured. This was in line with the guideline and heuristics suggested by Straub, Boudreau and Gefen (2004), who stated that people who have expertise in the area should evaluate an instrument before it is used to collect data to increase content validity. All of the experts were in academia, and most had practitioner experience as well (Straub 1989); conducted a pilot test with ten respondents representing leadership of the sample frame to which the final questionnaire survey was to be administered. These processes helped to purify the instrument, to include some and to reclassify others. Further, the procedures helped to tailor the

wording of some of the measures based on suggestions received from the respondents. The above procedures ensured that the instrument used in this study had sufficient content validity.

### **Reliability**

Any measurement instrument may have some ‘garbage items’ that lack similarity to the majority of the other items (Churchill, 1979). As a result, conducting initial measure purification is required to weed out garbage items, if any. Unless they are identified and removed, such garbage items can produce unnecessary dimensions. The recommended method for conducting measure purification is item analysis using internal consistency reliability (Straub, Boudreau & Gefen 2004; Field, 2009).

In line with the recommended practices, the following procedures were followed to purify the measure of garbage items and improve reliability in this study: (1) Cronbach’s Alpha, corrected item-total correlation, and Cronbach’s Alpha if item is deleted statistics were calculated for the four of the constructs including entrepreneurial orientation (EO), Organizational Environment (OE), external environment (EE), and organizational performance (OP); and (2) items with an item-to-total scale correlation of less than 0.3 and/or whose deletion could improve the reliability of the construct were identified. However, from this procedure, no items were deleted either due to low item-scale values rather some items were included and reworded.

### **5.9 Data Collection Procedures**

According to the explanations given by Onwuegbuzie and Collins (2007) in Johnson and Christensen (2012; 238), two major criteria are to be noted during data collection procedures using a mixed sampling framework: (a) the time orientation of the components; and (b) the relationship between the quantitative and qualitative samples. The time orientation refers to whether quantitative and qualitative phases occur concurrently or sequentially. The sample relationship criterion of the framework results in four major types: identical, parallel, nested, and multilevel. From the above two criteria- time orientation, and sample relationship, eight mixed sampling designs can be resulted: (i) identical concurrent, (ii) identical sequential, (iii) parallel concurrent, (iv) parallel sequential, (v) nested concurrent, (vi) nested sequential, (vii) multilevel concurrent, and (viii) multilevel sequential. For example, in an identical concurrent mixed sampling design,

quantitative and qualitative data are collected approximately at the same time from the same individuals who are taking part in both phases of the study. In parallel sequential mixed sampling design, quantitative and qualitative data are collected one after the other from different participants but from the same population under investigation. The nested concurrent design represent the collection of quantitative and qualitative data approximately at the same time but one group of the sample being the subset of the other (Onwuegbuzie & Collins, 2007; in Johnson & Christensen, 2012: 238). In this study, a nested concurrent sampling design was used whereby concurrent data collection is taking place but the respondents to the qualitative questions are only the subset of the quantitative respondents.

### **5.10 Data Analysis and Presentation**

The purpose of data analysis is to find meanings by breaking data down to identified patterns, themes, and characteristics. Therefore, to organize, analyze and attribute meaning to the data, the three-step process described by Miles & Huberman (1994) has been applied. The three steps include (i) data reduction, (ii) data display, and (iii) conclusion drawing and verification. In a data reduction stage, the quantitative-related information collected through the questionnaire instruments were coded using IBM SPSS 20 software then after, data screening processes were conducted and tests of assumptions were examined using relevant statistical methods and techniques. Finally, the data was computed using descriptive statistics (mainly means), and inferential statistics like Independent Samples t-test, MANOVA and Regression analysis. The importance of such statistical packages to test quantitative research questions and estimate the added impact of independent variables to the dependent ones is appreciated by Pallant (2007). Regarding the qualitative aspect of the analysis, suggestions of Miles & Huberman (1994) was considered. Consequently, breaking down, labeling, and rearranging of the data into categories, and processing of “selecting, focusing, simplifying, abstracting, and transforming the data” to generate themes and patterns from the data material had taken place. Further, relevant categories and themes were created and irrelevant information discarded.

In the *data display stage*, numerous tables, charts, and other graphical formats are generated to display relationships and effects on the quantitative aspects of the study. According to Miles and Huberman (1994), the essentiality of a good display of data in the form of tables ultimately permits

drawing of conclusions. Similar to data reduction, data display is a continual process. For the qualitative aspect of the study, data is presented in two formats: narrative and data matrix. The narrative format is the most common, and usually comprises a combination of description and analyses. The data matrix component of the report was designed in as a “slot-filling” approach, i.e. the report comprised short answers to a series of structured questions organized around the conceptual framework.

Further, university documents were analyzed using basic textual analysis. Information relating to entrepreneurship were identified, and examined in their context. Manifest and hidden meanings were explored. The aim was to explore what issues surrounding entrepreneurship are present in the documents and whether any reference to the meanings of the information was implicitly or explicitly present. The main document explored was the university’s legislations, strategies, handbooks, BSC documents, manuals, reports, and websites. Regarding the analysis of the data that was obtained through interview schedules, the steps of interview analysis as described by Miles and Huberman (1994) was employed. Thus, i) asking questions regarding who or what was observed and what major themes seem to be emerging from the data; ii) selecting data to be included and discarding data that do not appear relevant; iii) coding interviews according to patterns and themes that emerge; iv) reorganizing codes based on their relationship to one another and to participants; and v) drawing conclusions from the patterns and themes. Further data analysis was generally passed in six phases: organizing data, generating categories, coding data, testing the emergent understandings, searching for alternative explanations, and writing the report (Marshall & Rossman, 1999).

In doing a comparative analysis of the institutional proximity of AAU & BDU toward entrepreneurialism, the action was started after the clarification of elements for comparison. A prerequisite for any comparative study is to establish the parameters for initial comparability of the chosen units of analysis. It is argued by Bray (2004) that comparative researchers may focus on the entirety, or on one or a combination of elements. Accordingly, universities are the unit of analysis for comparison in this study. Thus, instructive analysis was made when the units for comparison “have sufficient in common to make analysis of their differences meaningful”. Further, attention was given to the underlying context of the commonalities and differences, and to their causal relevance to the entrepreneurial phenomenon being examined. In other words, the

extent and the reasons for commonalities and differences between the units of comparison, and the causes at work and the relationships between those causes were examined.

During and after the selection of cases, a preliminary external comparative analysis of their similarities and dissimilarities was conducted. However, as it was proposed by Bergene (2007), when this was done, the researcher has supplemented the characteristics of comparisons between cases with data collection and internal analyses of each case in its own right, paying heed to context and laying the groundwork for the theoretical comparison. Moreover, the last step was consisting of analyzing the interconnections between, and the dissimilarities among cases.

In the stage of conclusion drawing and verification, the researcher begins to develop initial conclusions regarding the findings and the study. Developing initial conclusions was based on cross-case data displays and then subjecting these initial conclusions to verification procedures (Miles & Huberman, 1994); for example, this has involved data triangulation, and went back and forth between the data, literature and theory (Jick, 1979). This approach involves examining cases with the same outcome and checking which variables they have in common through eliminative induction (Cited in Bergene, 2007). The second mode of inference identified by Hammersley, et al. (2000) is analytic induction where causation involves necessity, and causal analysis implies defining the essential features of what is to be explained. Therefore, both eliminative induction to show commonalities and analytical induction for the differences were employed. These steps intended and helped to verify that findings are appropriate, trustworthy and reliable before they are presented as final or conclusive results.

### **5.11. Data Entry, Screening, and Examination**

Detection of missing data was the first screening step involved in this study. Accordingly, the advice by Allison (2002) which states that “*the only really good solution to the missing data problem is not to have any*” was considered strictly and no missing data was observed (in Meyers, Gamst & Guarino, 2006:65). Secondly, data examinations were made using a univariate, bivariate and multivariate test for outliers (Meyers, et al., 2006). A common approach to the detection of multivariate outliers is the computation of the squared Mahalanobis distance ( $D^2$ ) for each case (Hair, et al., 2010). This statistic measures the distance in standard deviation units between a set of scores for one case and the sample means for all variables. Thus, Mahalanobis distance values

were computed by applying the procedure suggested by Tabachnick and Fidell (2007). First, codes were randomly assigned to the data. Then, linear regression analyses were run by taking the assigned codes. This was done to derive and save the Mahalanobis distance values for each of the cases. From examination of the values, no case was found to be a multivariate outlier to be removed from subsequent analysis. The data for the variables which might contain outliers has been standardized and the cases were checked if the standard deviation is  $\pm 3.3$  or beyond to be considered as outliers (Pallant, 2007). However, the results show that there is no univariate outlier as all of the z values were within the range  $-3.3$  and  $+3.3$ . Further, box-plots were produced using the SPSS for each variable and respective constructs to check whether or not extreme outliers are found. A data point that is farther than  $\pm 1.5$  IQRs but less than  $\pm 3.0$  IQRs is labeled by SPSS as an outlier and shown in its output as "O." A data point that exceeds  $\pm 3.0$  IQRs distance is considered to be an extreme score and given the symbol "E" in its output (in Meyers, et al., 2006:54). However, despite few outliers, no extreme outlier was explored in this data (See Appendix).

Further, the Mahalanobis distance values were evaluated using a chi-square ( $\chi^2$ ) distribution, with degrees of freedom equal to the number of variables clicked into each independent(s) area; and evaluated with a Table of Critical Values for chi square at a stringent alpha level of  $p < .001$ . Then after, multivariate outliers were screened by computing Mahalanobis distance for AAU and BDU on the continuous variables, i.e., entrepreneurial orientation, entrepreneurial ecosystem, and entrepreneurial performances of which none was detected to be outliers ( $P > .001$ ). Before running the multiple regression analysis to test the impacts of the interaction among the variables of entrepreneurial ecosystems, entrepreneurial orientation and performances, the assumptions of normality, linearity, homoscedasticity (Homogeneity of Variance) and multicollinearity were checked. Normality is helpful to check the symmetry of data distributions (skewness) and the clustering of scores toward the center of a distribution (kurtosis). The measures of both tests of a normal distribution are to have values of zero, otherwise different from zero indicate departure from normality. However, some statisticians are more comfortable with a conservative threshold of  $\pm 0.5$  as indicative of departures from normality (e.g., Hair et al., 1998; Runyon et al., 2000), while others prefer a more liberal interpretation of  $\pm 1.0$  for skewness, kurtosis, or both (e.g., George & Mallery, 2003; Morgan, Griego & Gloeckner, 2001; in Meyers et al., 2006:50).

Consequently, considering the later suggestions, the results of this study show that normality tests for each dependent variable combinations were not statistically significant, indicating no serious normality violations. This was confirmed with the skewness and kurtosis statistics; all were within the -1 to +1 range. These statistical assessments are further confirmed by an examination of the normal probability plots of each variable (see Appendix).

Additional statistical tests conducted to test normality in this study include the Kolmogorov-Smirnov and the Shapiro-Wilk tests. In this respect, the statistical significance at 0.01 indicates a normality violation. In particular, the results of the Kolmogorov-Smirnov test depict a value of below 0.01 for the constructs 'Autonomy' (.000) and 'Heterogeneity' (.000) which indicates a normality violation. However, although both tests can effectively be employed, this study considered the Shapiro-Wilk test which appears to be "*the most powerful in detecting departures from normality*" (Stevens, 2002: in Meyers, et al., 2006:68:264). Consequently, by assuring that there are no normality violations there was also no need to do data transformations. Thus, the study proceeds with confidence to an assessment of the covariance matrix (See Appendix A).

Furthermore, a test of linearity was conducted to check the fulfillment of the assumptions for the multivariate analysis such as multiple regressions, multivariate analysis of variance (MANOVA) and factor analysis. Such analysis assumes that the variables are related to each other in a linear manner. Based on this assumption, linearity procedures often compute the Pearson correlation coefficient (or a variant of it) as part of the calculations needed for the multivariate statistical analysis (in Meyers, et al., 2006:69). Moreover, tests were made to detect *homogeneity of variance* violations using *Fmax* and Levene's test. The *Fmax* test is computed by working with the variance of each group and dividing the largest variance by the smallest variance. In relation, Keppel, et al. (1992) note that any *Fmax* value of 3.0 or greater is an indication of assumption violation, and they recommend the use of the more stringent alpha level of  $P < .25$  and *F* ratio when evaluating. Alternatively, Levene's test assesses the statistical hypothesis of equal variances across the levels of the independent variable. Rejection of the null hypothesis (at  $P < .05$ ) indicates an assumption violation or unequal variability (in Meyers, et al., 2006:70).

The final aspect of data examination was related to Collinearity and Multicollinearity considerations. Collinearity is a condition that exists when two predictors correlate very strongly

while multicollinearity is a condition that exists when more than two predictors correlate very strongly. The ideal situation for using MANOVA is when the dependent variables are moderately correlated and it should not be used at the dependent variables that are uncorrelated. Hence, Bivariate correlations of .90 and higher (although sometimes it would be advisable to consider correlations in the mid-or sometimes even in the low .8s to be of concern) are indicative of multicollinearity, and one of the two variables would be a good candidate to delete (Tabachnick & Fidell, 2001; in Meyers, et al., 2006:215). Consequently, the examination of the Pearson correlations between the variables was undertaken as a prelude to multiple regressions. Therefore, assuring that there are no normality and linearity violations observed, the study proceed with confidence to an assessment of entrepreneurialism in AAU and BDU using different statistical tests.

### **5.12 Ethical Considerations**

Ethical issues in research emerge as researchers enjoy a degree of ‘freedom of action’ when conducting their research (Sarantakos, 2005). To ensure the respective trust and confidentiality in the dynamic process of research, a set of ethical codes needs to be followed. Busher and James (2007), in Cohen (2007:113) suggested that “*researchers are ethically bound to maintain the privacy of participants, including confidentiality for any information they give and anonymity for their identity*”. In the present study, confidentiality and anonymity were issues of concern. Being a small-scale study in which participants are senior, middle or lower managers from two institutions, care was taken not to leave room for the views of those participants to give an indication of their identity, except in situations identification was vivid in other source documents. In protecting respondents’ recognition by name, role position and the like, pseudonyms (codes) were assigned, as identifications for each respondent. This care was consistently respected during presentation, interpretation and analysis of data. Participants have been made aware of this issue before participating, and their consent sought before conducting interviews with them, but most were hesitant to approve the consents with a written format. Therefore, every attempt was made to minimize the reference to specific details about participants’ personal information and identities that might have been accidentally mentioned by them in the interviews.

## **CHAPTER VI: RESEARCH FINDINGS OF THE STUDY: ANALYSIS, PRESENTATION, AND INTERPRETATION**

### **6.0 Introduction**

This chapter deals with the research findings of the study. It consists of the analysis and presentation of the empirical findings which are processed from both quantitative and qualitative sources of data. This sub-section deals with the presentation and descriptive analysis on the state of variables of entrepreneurial orientation, organizational environment, external environment and entrepreneurial performance in AAU and BDU. At the end of each and every analysis, an independent samples t-test was administered to check whether or not variations are found between universities, considering every construct as a multidimensional component of the respective variable. Again, following the presentation and analysis of all constructs within a specific variable a two Group MANOVA analysis was conducted by considering all constructs as uni-dimensional components. Along each construct and variable there are qualitative analyses. This methodological approach was specifically carried out, to analyze the proximity of performances along the traditional- entrepreneurial paradigm and to explain on the dimensions and volumes of resource mobilization and diversification practices of the case study universities. Finally, regression tests of the interactive effects of the quantitative variables i.e., entrepreneurial orientation, organizational environment, external environment and performance are carried out.

### **6.1 Research Findings of the Study**

In this sub-section the empirical findings of the survey results, in-depth interviews, observations as well as analyses of documents about the state of entrepreneurial orientation, performances and the entrepreneurial eco-system are described.

#### **6.1.1 Entrepreneurial Orientation**

Findings on university leadership members' Entrepreneurial Orientation is presented and discussed here. The variable consists of 5 constructs namely, autonomy, innovativeness, proactiveness, competitive aggressiveness, and risk-taking. To this end, the data collected from the office holders of AAU (n=38), and BDU (n=40) through the questionnaire are presented and analyzed descriptively. In addition, data obtained from documents and interview schedules are

used to triangulate and test the internal entrepreneurial ecosystem of both universities. This is followed by interpretations based on the mean values of each item, each construct, and finally statistical test is administered on the dimension of ‘entrepreneurial orientation’ so that to capture the institutional proximity to entrepreneurial university and to find out if at all there are institutional differences in this regard.

To this end, the questionnaire collected from the office holders of AAU (n=38), and BDU (n=40) are presented and analyzed. In addition, data obtained from documents and interview schedules is used to triangulate and test the institutional entrepreneurial orientation of AAU and BDU. Then after, interpretations are given based on the mean values of each item, each construct, and finally on the dimension of ‘entrepreneurial orientation’ so that to capture the institutional proximity to entrepreneurial university.

Table 6.1

Autonomy in AAU and BDU

Items	University				t (2-tailed) df=76
	AAU (n=38)		BDU (n=40)		
	Mean	Std. Dev.	Mean	Std. Dev.	
AU1. The freedom of the university to determine its entrepreneurial activities	3.13	1.339	3.75	.899	
AU2. Financial autonomy: to attract additional funding, borrow and raise money and to invest in long term development independently	2.84	1.175	3.30	1.091	
AU3. Academic autonomy: to design new programmes or to terminate non-marketable ones	3.26	1.201	4.08	.971	t= -2.936
AU4. Roles to drive projects forward with institutional effort and accountability to lead entrepreneurial projects towards success	3.08	1.100	3.35	1.189	
AU5. Autonomy to take independent actions towards staffing	3.05	1.207	3.43	.984	
AU6. Institutional free will to support innovative and interdisciplinary entrepreneurial activities	3.03	1.150	3.18	.844	
<i>Grand mean and test- of significance on autonomy category</i>	3.0219	.95324	3.5875	.73959	<i>P=.004</i>

The results of the descriptive analysis for items related to ‘autonomy’ are shown in Table 6.1 above. Informants were asked to rate for each item, measured by a five-point Likert scale ranging from ‘1’ (‘to a very less extent’) to ‘5’ (‘to a very great extent’). From the mean scores, it seems, office holders in these two universities rated 5 items (of the 6) above the mid-point (M=3.0). It is only a single item (AU2) i.e. ‘to attract additional funding, borrow and raise money and to

invest in long term', which was rated lower than the mid-point by the respondents of AAU (M=2.84, SD= 1.175), while it was upper the mid-point in BDU (M=3.30, SD=1.091). The grand rated mean scores for 'autonomy' from both universities lie above the mid-point (M=3.0). This shows that the case study universities have the institutional autonomy ranging from the scales 'a medium extent' to 'a great extent' and as one of the requirements in the entrepreneurial orientation, this is hoped to allow universities to have control over their resources, to meet the changing demands of society and the market, and to carry out their purpose for which they are established without or with minimal external forces, and to work towards optimal achievement of set goals. However, the conducted test- of significance on the 'autonomy 'category displays that responses from BDU rated higher (M=3.5875) than AAU (M=3.0219), and this shows that there is a statistically significant difference between the two universities with regard to 'autonomy' [(t<sub>(76)</sub> =-2.936, *p* < .05)]. Differences in results implies that even though both universities sense the availability of institutional autonomy, BDU tends to be found relatively in a better autonomous position to launch and implement entrepreneurial activities as compared to AAU. Consequently, the variations in response rates about autonomy may provide a clue to AAU and BDU to balance on their bottom-up and top-down practices respectively. In this context, one can refer to Brennan, et al. (2014) who argued that autonomous higher education institutions, having more control over their financial resources and allocation of these resources to their functions, tend to develop more bottom-up practices. On the other hand, less autonomous higher education institutions tend to have a more top-down, state-driven approach to innovation.

However, what is reported by the respondents of AAU and BDU about the institutional autonomy is hoped to be a good sign for the improvement of entrepreneurial orientation. Because, according to the European Commission (2008), it is the autonomy that gives strength to higher education institutions an innovative capacity, and hence entrepreneurial potential. As a result, the analysis made on documentary evidence and interviews indicate that both AAU and BDU are granted organic autonomy, related to academic mandate, i.e., introduce or terminate degree programs, select and admit postgraduate students, decide modes of instruction and delivery, set priorities for research; procedural autonomy such as financial one, to charge tuition fees from government or nongovernment sponsored students, to determine the price of research and consultancy works, to generate revenue from their research; to generate and deploy monetary resources; to own buildings, to borrow money, and to lease university facilities. Procedural autonomy is also

reported to be available, especially, related to staffing which ranges from recruitment, promotion, or dismissal of academic and /or administrative staff, and on setting of working conditions. Moreover, respondents in both universities were positive with respect to substantive autonomy such as the right of the universities to determine on internal governance and decision-making structures/bodies, introduce new academic structures (faculties, departments, research centers, etc.). Therefore, the findings of this study is in relation to autonomy as construct of entrepreneurial orientation and is in congruence with the findings of Fisseha about two Ethiopian universities, other than those in this study (2015:157-159). This is also in line with arguments of Franz (2013), which states that several steps have been made in recent years to increase the autonomy of universities. Decision makers have realized that autonomy increases especially in managing budgets, in recruiting staff and developing human resources, in the creation of new courses of studies and in managing physical resources (buildings, infrastructure) of universities.

The reported and observed institutional autonomy in this case study universities is also found to be granted in the Ethiopian Higher Education Proclamation No. 650/2009 (FDRE, 2009:Art,17) which includes institutional freedom to develop and implement relevant curricula and research programs; creates new or close existing programs; sets up their organizational structure and enact and implement internal rules and procedures; selects through a transparent system of competition of academic and other staff to be employed by the institutions and designates or determines their responsibilities based on institutional requirements and expectations concerning performance and quality of work; selects and appoints leaders of academic units and to ensure lawfulness, efficiency and effectiveness, transparency, fairness, and accountability. All these indicate the relative prevalence of institutional autonomy, which in turn, could contribute for entrepreneurial engagements.

Nevertheless, even though AAU and BDU are found to be enjoying freedom to bring forth the aforementioned ideas or vision and carry them through to completion, the BSC document of AAU (2013d:17) indicated the ‘absence of university autonomy as a threat of the institutional accomplishments’. Besides, focuses in the strategic plan of BDU were found to be ensuring the capacity to operate in full autonomy, to be empowering the management of own resources and activities, and to increase participatory decision making placed at all level of the university (BDU, 2011:33). The salient meanings of these statements in the official documents indicate

that both universities were with a certain gap of institutional autonomy but exerting their efforts to ensure their complete autonomy. There were also interview respondents in both universities with views stating about situations where the government interference is observed in the entrepreneurial operations of the universities. For instance, the centralization of undergraduate student admission, the remuneration policies for academic and administrative staff; the externally imposed standards such as from Ministry of Finance and Economic Development on the use of financial resources and the management (MoFED, 2014); and the Ministry of Civil Service on human resources (FDRE, 2007) were cited as constraints in directing the entrepreneurial strategies with proper flexibility and agility.

Table 6.2

Innovativeness in AAU and BDU

Items	University				t (2-tailed) df=76
	AAU (n=38)		BDU (n=40)		
	Mean	Std. Dev.	Mean	Std. Dev.	
IN1. Institutional motivations to pursue new avenues in entrepreneurship	3.03	1.150	3.18	.844	
IN2. Emphasis on product innovativeness i.e., introduction of new products, services or technological processes	2.58	1.056	3.08	.971	
IN3. The tendency for organisational innovativeness i.e., introduction of a new organisational structures, business practices, or external relations	2.82	1.159	3.35	.834	
IN4. Willingness to depart from traditional practices, delivery methods, or venture/business undertakings	2.71	1.088	3.05	1.085	t= -1.618
IN5. Changes and adjustments on the focus of entrepreneurial activities over the last 5 years	2.76	1.195	2.95	.714	
IN6. Preferences for newness and novelty in marketing, and organisational issues	2.71	1.113	2.90	.900	
IN7. Institutional regard about innovativeness as compared to other public universities	2.87	1.044	3.10	.982	
<i>Grand Mean and test- of significance on innovativeness category</i>	2.7820	.93397	3.0857	.71524	P=.110

Table 6.2 shows the results of the descriptive statistics of the rated items related to ‘innovativeness’ in AAU and BDU. A total of 7 items which consists a five-point Likert scale ranging from ‘1’ (‘to a very less extent’) to ‘5’ (‘to a very great extent’) were administered to measure the leadership members’ evaluations on their universities’ innovativeness and the tendency to engage in and support new ideas, novelty, and creativity which lead to the creation of new products, services or technological processes. From the mean scores, it is observed that

AAU and BDU respondents seem to agree on rating of 2 items below  $M=3.0$  out of 7 i.e. The item referring to ‘changes and adjustments on the focus of entrepreneurial activities over the last 5 years’ (AAU,  $M=2.76$ ,  $SD=1.195$ ; BDU,  $M=2.95$ ,  $SD= .714$ ) and the item ‘preferences for newness and novelty in marketing, and organisational issues (AAU, 2.71, 1.113; BDU, 2.90, .900). On the other hand, it is only in rating of 1 item (of 7) that respondents of AAU and BDU are in agreement to rate above the mid-point 3.0 i.e. ‘institutional motivations to pursue new avenues in entrepreneurship’ (AAU,  $M=3.03$ ,  $SD=1.150$ ; BDU  $M=3.18$ ,  $SD=.844$ ). All the other 4 ‘innovativeness’ related items (IN2, IN3, IN4 and IN7) are rated below  $M=3.0$  by respondents of AAU and above  $M=3.0$  by BDU. Accordingly, the grand rated mean scores on the ‘innovativeness’ category was calculated and found that responses from BDU rated higher ( $M=3.0857$ ) than AAU ( $M=2.7820$ ). However, the conducted t-test result shows that there is no a statistically significant difference between the two universities with regard to ‘innovativeness’ [ $(t_{(76)} = -1.618, p >.05)$ ]. Alongside, the ‘innovativeness’ category of the entrepreneurial orientation component in both universities is concentrated around the mean score which implies that both institutions are at about similar positions in their potential to engage in and support new ideas, novelty, experimentation and creative processes that may result in new products, services or technological processes.

Besides the institutional efforts for newness and novelty in product, process, marketing, and organisational issues, were searched from different documents and through interview schedules. Meanwhile, it is found that AAU and BDU had a number of recorded process, product, marketing and organizational related innovations in the past five years. For instance, the involvements of the case study universities to put in place a relatively efficient and transparent organizational structures; establishment of horizontal, and decentralized administrative systems; alignment of graduate researches into thematic areas that address the development goals of the nation; enhancement of ICT facilities and automation systems; increases in the capacity of dissemination of research results (publications); development of interdisciplinary programs; establishment of new units in existing programs; structuring of research centers under trans-disciplinary programs; and augmentation measures on the quality of the graduate programs were among the repeatedly cited ones in documents (AAU, 2013d; BDU, 2011; BDU, 2012b) and the frequently mentioned by respondents. Particularly, the strategic initiatives taking place in AAU since 2013 like those projects related to thematic research and dissemination;

research partnership and collaboration; university enterprise establishment; program internationalization; incubation and science park centers/programs; local and international standing; establishment of university endowment fund, establishment of alumni association (AAU, 2013d:62; AAU, 2015a) were centers of innovative efforts and allied with institutional entrepreneurial orientation. The thematic research package was cited by many respondents of both universities as a breakthrough in developing interdisciplinary programs. Specifically, AAU documents in relation to thematic research reveal that:

Research at AAU was given new direction with new set of policies in which it was underscored that research should respond to national demand of generating new knowledge and technology and dissemination, strengthen and develop capacity of students in contemporary science and technology, and that it should be conducted in the most cost-effective and responsive manner and interdisciplinary and thematic (AAU, 2013:1j).

The thematic research document of BDU, on the other hand, reveals that it is to address a national priority problem with clear potential for economic benefit/commercialization or have significance for the social or cultural benefit of Ethiopia (BDU, 2014). Therefore, thematic research is one of the innovative practices widely recognized by both universities as being instrumental in addressing the growing complexity of research questions, leveraging more and better funding, increasing the mobility of researchers, and creating exchange opportunities for graduate students. Further, the case study institutions hoped to ensure the involvement of government institutions, the private sector, civil society organizations, and other end users, either in the form of knowledge generation, extended technology or initiation of further research on societal-focused problems. Moreover, universities hoped the thematic research to be instrumental for the value of interdisciplinary and multi-faceted collaboration within different academic and research units of the university and international institutions (AAU, 2013i:33; AAU, 2014; BDU, 2014). Consequently, the currently operating 26 thematic research areas in AAU; and 12 thematic areas in BDU are deploying faculties from different departments and colleges for solving a problem, and demanded a multi-disciplinary team composition as a criterion to obtain internal research funding (AAU, 2013i; BDU, 2014). Nevertheless, despite the relationship of innovative activities to entrepreneurialism, ‘entrepreneurship’ is not among the direct research themes of both

universities. This is in congruent with the findings of Mudde, et al. (2015) in that given the recent attention for entrepreneurship in combination with the limited research capacity and experience at AAU, hardly any research on entrepreneurship has been carried out.

Moreover, the examined documents in relation to the establishment of innovative structures in AAU and BDU show that there are boundary-spanning innovative academic units in which traditional, discipline-centered departments are supplemented by centers – generally multidisciplinary and even trans-disciplinary – that link themselves to the outside world in research problems or needed training. For instance, departments and schools at both universities are discipline-based academic units whose main functions are teaching, research, and community services, while the roles of the remaining research units/centers are a bit innovative which includes firstly, units with the principal objectives of carrying out research and publishing the results thereof whose staff also engage in teaching at home-base departments/ schools/centers; secondly, of units with the duties and responsibilities of teaching and research (AAU, 2013g:16; BDU, 2012c).

The establishments of boundary spanning research units are supposed to run different innovative practices in both universities. However, various world-wide challenges seem to determine the development and implementation of various innovative practices even the case study universities. For instance, Brennan, et al. (2014) mentioned three main challenges that trigger the introduction of different innovative practices in different higher education contexts:(i) pressures from globalization; (ii) changing supply of and demand for higher education; and (iii) changes in higher education funding. In the same vein, data from interview schedules of this study demonstrate that AAU and BDU tend to be engaged in various innovative practices whether triggered by pressures from globalization; changing supply of and demand for higher education; and changes in higher education funding.

Consequently, even though no data is secured regarding the number of new products or services introduced in a certain time lapse, and the frequency of changes in services or product lines (inventions) in AAU and BDU as an entrepreneurial activities, informants of both institutions were of the opinion that the innovativeness aspect of entrepreneurial orientation was taking place through both processes of ‘doing new things’ and ‘doing the existing things better’. Further, the institutional commitment of BDU for innovation was further indicated in its institutional values.

For instance, of the 6 core values communicated in the strategic document of BDU (2011:6), the one is about ‘*innovation*’ which is part and parcel of entrepreneurship. The other proxy indicator of innovativeness in a university is, according to Garofano and Guerriera (2009:83) by the percentage of scientists and engineers relative to the total number of employees, research and development expenditures, and R&D intensity (measured as the ratio of research and development expenditures to the organization’s total amount of budget). Therefore, results about the application of some additional indicators of innovativeness in AAU and BDU are presented below, in Fig 6.1 and 6.2 respectively.

Figure 6.1

The Percentage of Scientists and Engineers Relative to the Total Number of Faculties in AAU and BDU, 2015

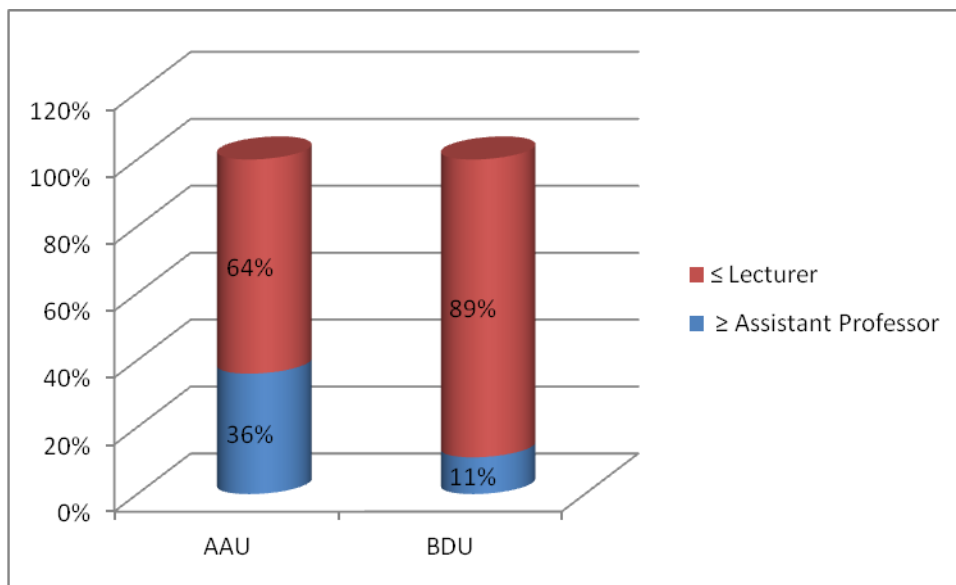


Figure 6.1 displays the proportion of faculties as the other indicator of innovativeness potential in a university. It is found that the share of  $\geq$  Assistant Professor is = 884 (36%),  $\leq$  Lecturer= 1565 (64%) in AAU; while the share of  $\geq$  Assistant Professor =178 (11%), and  $\leq$  Lecturer= 1478 (89%) in BDU. This indicates that most faculties and colleges at the AAU have highly qualified staff, characterized as senior, experienced, and often sufficiently trained and in a better position to promote innovativeness within and outside the campus. On the other hand, data reveals that most faculties and colleges at the BDU are junior for carrying out innovative projects, postgraduate teaching, research or/and other service tasks.

Figure 6.2

Budget Share for Research and Development, and Community Services in AAU and BDU, 2015

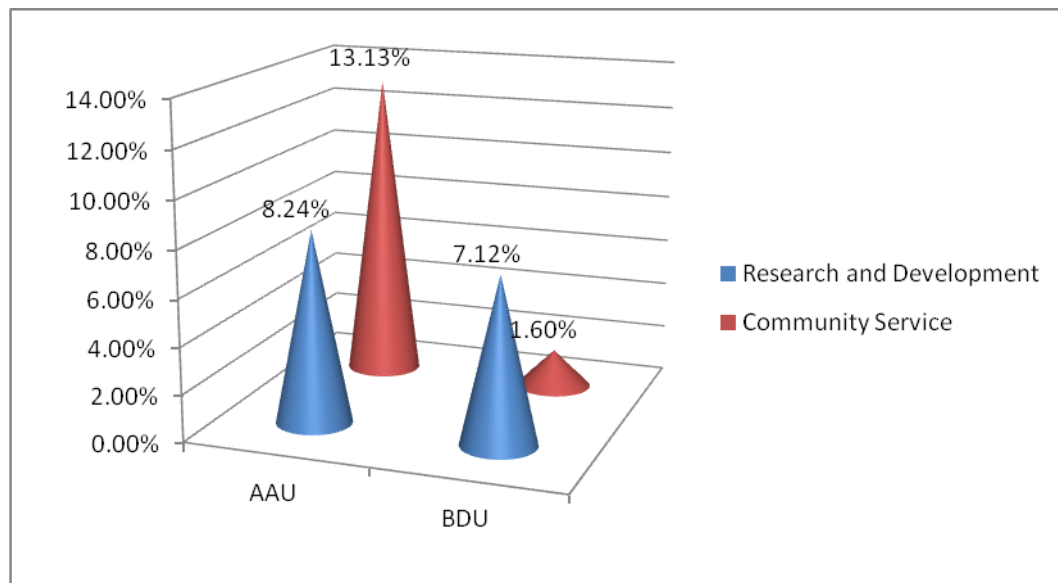


Figure 6.2 displays the proportion of annual expenditure in universities for research and development, and community services as indicators for their innovative potentials. Meanwhile, the research and development expenditures for 2014/2015 reveal 8.24% and 13.13% for community services in AAU; while it was 7.12% for research and development, and 1.6% for community services in BDU. This allotment was from the annual recurrent budget of Birr 793528770 and Birr 623613100 to AAU and BDU respectively. This indicates that AAU was not only paying attention to research and development but also to work on community development (social entrepreneurship). On the other hand, data in the figure shows that BDU is especially in a position to actively engage in research than in community services. Therefore, as innovation is an important means of pursuing opportunities and so is an important component of an entrepreneurial orientation (Lumpkin & Dess, 1996), ensuring multiple modes of innovation: product, process, organizational or business model innovations are vital (Freiling & Schelhowe, 2014: 173). There is also a high degree of consensus in considering innovativeness as a central factor to characterize entrepreneurship and a key component of firm competitiveness and success in turbulent and rapid changing environments, as it represents a fundamental way for firms to pursue new opportunities, and which in turn calls for AAU and BDU to take critical considerations.

Nevertheless, the proxy indicator of innovativeness in a university such as the percentage of scientists and engineers relative to the total number of employees, and expenditures for research and development looks to be lower in both cases, though comparatively seen AAU is in a better position than in BDU. Practically, it is the level of human and financial resources dedicated to research and development, the number of new product or service introduced in a certain time lapse, and the frequency of changes in services or product lines that makes an institution innovative and entrepreneurial oriented.

Table 6.3

Proactiveness in AAU and BDU

Items	University				t (2-tailed) df=76
	AAU (n=38)		BDU (n=40)		
	Mean	Std. Dev.	Mean	Std. Dev.	
PR1. Anticipation to new entrepreneurial research trends	2.66	1.169	3.00	1.062	
PR2. Fore-ward looking behaviors to take active measures in the relevant entrepreneurial fields	2.74	.978	3.13	.939	
PR3. Foresight to seize opportunities in anticipation of future needs of clients	2.66	1.169	3.03	1.097	
PR4. Alignment of university entrepreneurial efforts to the anticipated needs	2.55	1.083	2.98	.947	t=-1.786
PR5. Incorporating of new discoveries from outside to own programs	2.58	1.030	2.70	.911	
PR6. Presentations and discussions of entrepreneurial results rapidly and eagerness for feedbacks	2.37	.998	2.63	1.079	
PR7. Dissemination of own university knowledge to internal and external consumers	2.53	.830	3.03	1.097	
<i>Grand mean and test- of significance of proactiveness category</i>	2.5827	.88586	2.9250	.80617	P=.078

The proactiveness component of entrepreneurial orientation was measured using 7 items related to the issues of pioneering or institutional efforts of striving for the first-mover advantage. As presented in Table 6.3, of the 7 items, respondents from AAU and BDU indicated low institutional proactiveness in areas related to 3 items rated below M=3.0 namely, ‘Alignment of university entrepreneurial efforts to the anticipated needs’ (AAU, M=2.55, SD=1.083;BDU, M= 2.98, SD= .947); ‘Incorporating of new discoveries from outside to own programs’ (AAU, M=2.58, SD=1.030; BDU, M=2.70, SD=.911); and ‘Presentations and discussions of entrepreneurial results rapidly and eagerness for feedbacks’ (AAU, M=2.37, SD=.998; BDU, M=2.63, SD=1.079). The mean scores of ratings vary between AAU and BDU for the remaining

four items that measure 'proactiveness' (PR1, PR2, PR3, and PR&) i.e. below the mid-point (3.0) for AAU and above M=3.0 for BDU respondents. Consequently, the grand rated mean score and test- of significance on the 'proactiveness' category displays that responses from BDU rated higher (M=2.9250) than AAU (M= 2.5827). However, the t-test result show that there is no a statistically significant difference between the two universities with regard to 'proactiveness' [( $t_{(76)} = -1.786, p > .05$ )]. Further, the 'proactiveness' category of the entrepreneurial orientation component in both universities is also not far from the mid-point (M=3.0), and this implies that the potential of the case study institutions on seizing initiatives and seeking opportunities in order to shape the environment is more or less at a similar medium level.

The study further attempts to explore on the forward-looking perspectives and the institutional foresights of the universities' under study through documents and interview schedules. Consequently, the proactiveness intention of AAU to become an entrepreneurial university through playing an active role in the socio-economic development of the country is clearly reflected in the strategy document; mainly in its mission, values and strategic issues. For instance, the mission of AAU is read as:

The Mission of Addis Ababa University is to produce competent graduates, provide need-based community service and produce problem-solving research outputs through innovative and creative education, research and consultancy service to foster social and economic development of the country (AAU, 2013d:8).

Likewise, of the 12 strategic issues that AAU indicates in its strategic plan, 4 (33.3%) of the items are directly dealing with entrepreneurship i.e., those read under numbers 4 is '*Research and innovation*'; No.5 is '*University-Industry/Society linkage*'; No. 6 is '*Resource generation and management*'; and No. 11 is about '*Entrepreneurship*' (AAU, 2013d:22). Therefore, the proactiveness component of the entrepreneurial orientation looks to get the relevant attention in AAU. In the same way, the proactiveness intention of BDU to become an entrepreneurial university is more or less reflected in its mission and the strategy document:

The mission of the Bahir Dar University is to contribute substantially for social, cultural, economic, political, scientific and technological development of the nation; through the provision of high quality education, active engagement in research and outreach activities for the betterment of

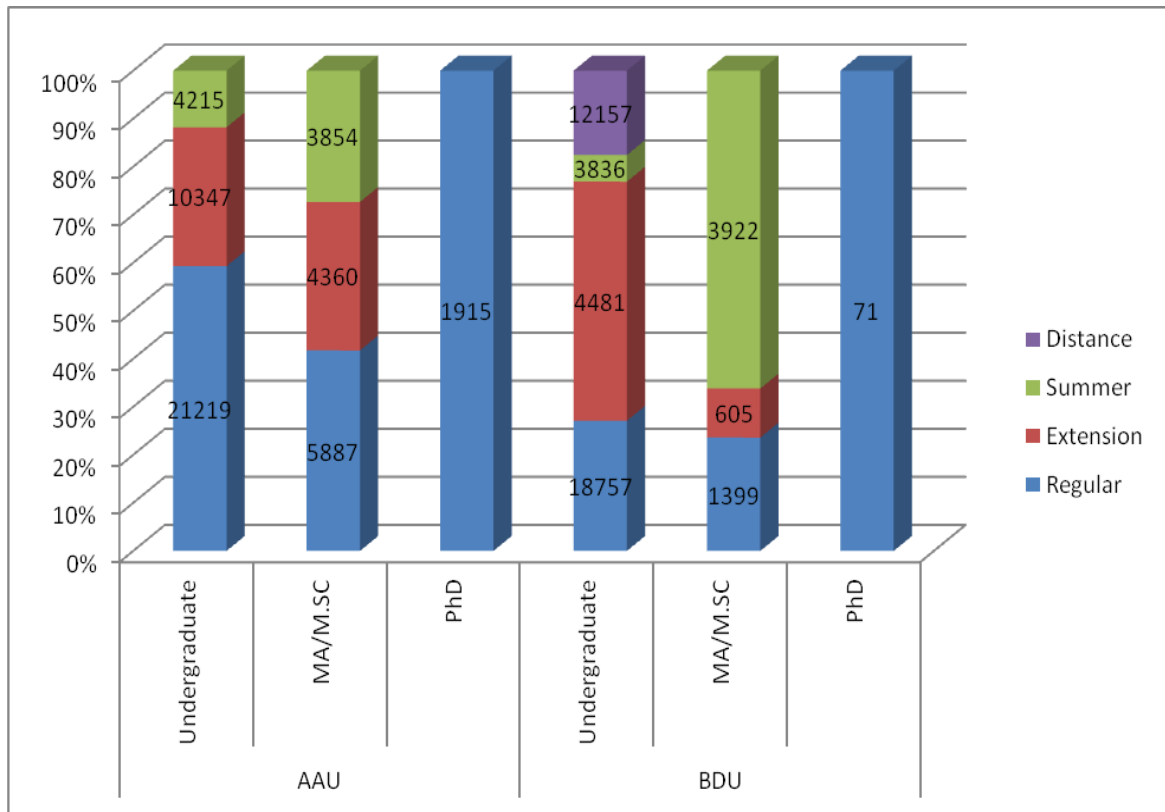
life, while offering our employees a conducive and rewarding working environment that values, recognizes and appreciates their contributions (BDU, 2011:6).

Additionally, among 11 strategic themes in BDU, 3 (27%) i.e., '*increase strategic networking and partnership*', '*increase internal revenue*', '*improve efficiency and effectiveness of financial and/or material resource*' are the corporate strategic objectives that have entrepreneurial component in the list (BDU, 2012 b: 18). Thus, the institutional efforts in restoring university reputation through solving specific problems of the environment and by contributing to the economic development of the country tends to be reflected in the mission and strategic issues of both AAU and BDU. Moreover, informants in both universities were expressing their views about the proactiveness of their institutions attaching to their efforts in mobilizing of resources for the overall successes of the respective missions.

In relation, the proactive entrepreneurial measures taken by both case study universities was reflected by the vertical and horizontal extension of university services in teaching (Figures 6.3). It indicates the extent that AAU and BDU are proactively extending vertically in levels of educational preparation in the old fields (Undergraduate, MA/M.Sc, and PhD). For instance, considering only the number of students of the two case study universities in a single academic year (2014/15), their respective share were found to be: regular undergraduate program, [AAU = 21 219 (54%), BDU= 18757 (46% )]; extension, [AAU=10347 ( 70% ), BDU= 4481 ( 30% )]; summer, [AAU= 4215 (52% ), BDU= 3836 (48%)], and Distance,[ BDU=12157 (100%)]. The results reveal that proactiveness in the customers' service of undergraduate program appears to be higher in the extension program of AAU, while it is in the distance program in BDU.

Figure 6.3

The Vertical Extension of AAU Students



In addition, in the MA/M.Sc. programs, the data in Figure 6.3 shows regular, [AAU= 5887(76%), BDU= 1399 ( 24%)]; extension, [AAU= 4360 (88%), BDU= 605 (12%)]; and summer, [AAU= 3854 (49.4%), BDU = 3922 (50.6%)], which imply that AAU proactively serves the higher portion of regular and extension post graduate program customers. Moreover, in the PhD regular program, almost all are found in AAU= 1915 (96%), while BDU is at the starting phase of the PhD program, which accounts only = 71 (4%). What is more, the horizontal extension of programs in the same academic year was recorded to be high in both universities. For example, AAU had 63 (18%) undergraduate, 221(62%) Masters, and 72 (20%) PhD programs through its 15 campuses. Similarly, BDU addresses 89 (50%) under graduate; 85 (47%) of MA/M.Sc. and 6 (3%) PhD programs through the 7 campuses. Therefore, the proactive initiatives to expand services in both fronts, i.e., horizontal and vertical is hoped to help the universities to shape the environment through introducing new programs and products.

Therefore, as it was argued by Wong, Lee, Ho & Wong (2005) in Wong, et al. (2007:942) that not only do the universities need to take on new functions, the nature of their core functions of education needs to be re-oriented as well. Also, the universities in developing economies may need to be more pro-active in commercializing their inventions through spin-offs; and universities would need to undergo more drastic reform of their organizational structure and incentive system, in order to change the culture and mindset of their staff and students toward knowledge commercialization. Nevertheless, although the current greater emphasis on entrepreneurship is considered by many to be a national government priority, some informants in both universities state, conversely, that the prevailing way of engaging in entrepreneurial issues were to wait for instructions (reactive) instead of taking initiatives (proactive). Accordingly, though the activities which are discussed in the aforementioned paragraphs about AAU and BDU provide clues that the proactive construct of the entrepreneurial orientation dimension is more or less addressed in some aspects of the universities, the need is there for a more significant emphasis on injecting a greater proactive entrepreneurial behavior in all spheres of the institutions.

Table 6.4

Competitive Aggressiveness in AAU and BDU

Items	University				t (2-tailed) df=76
	AAU (n=38)		BDU (n=40)		
	Mean	Std. Dev.	Mean	Std. Dev.	
CA1. Advancement of the university in entrepreneurial engagement as compared to other universities in the country	3.00	1.040	3.00	.847	
CA2. Efforts to become one of the quality entrepreneurial universities	3.11	1.134	3.40	1.008	
CA3. Surprising the competitors by making changes in strategy, programs, discoveries, products or	2.55	1.005	2.80	.791	
CA4. Critical observations to entrepreneurial activities of other institutes and trying to position own activities relative to them	2.66	1.021	2.78	.974	t= -1.126
CA5. Volume/intensity of competitive activity/events carried out in a given year to get positions in national, regional or global university	2.61	1.001	3.00	1.013	
CA6. Sequence and range of competitive actions on multiple fronts (e.g., in terms of criteria or levels of competition)	2.50	1.007	2.75	1.006	
<i>Grand mean and test- of significance of competitiveness Category</i>	2.7368	.92239	2.9542	.77899	<i>P=.264</i>

Table 6.4 indicates the mean ratings of informants in AAU and BDU for the 6 items which were administered to measure the ‘competitive aggressiveness’ category of entrepreneurial orientation. The rated mean scores for the 2 items are above or at the mid-point 3.0 level in both universities i. e. ‘Advancement of the university in entrepreneurial engagement as compared to other universities in the country’ (AAU, M=3.00, SD=1.040; BDU, M=3.00, SD=.847); and ‘Efforts to become one of the quality entrepreneurial universities’ (AAU, M=3.11, SD=1.134; BDU, M=3.40, SD=1.008). It was the item No.CA5, which was the sole to be rated below the mid-point (3.0) by AAU and at the mid-point by BDU. However, the rated mean scores for the other 3 items (CA3, CA4, and CA6) are below the mid-point 3.0 in AAU and BDU. The grand rated mean score on the ‘competitive aggressiveness’ category displays that responses from BDU rated higher (M=2.9542) than AAU (M=2.7368). However, still, both ratings are found to be below the mid-point (M=3.0) and the t-test result show that there is no a statistically significant difference between the two universities with regard to ‘competitive aggressiveness’ [( $t_{(76)} = -1.126, p >.05$ )]. Therefore, the ‘competitive aggressiveness’ category of the entrepreneurial orientation component in both universities is concentrated below the mean score implies that if there are efforts for better organized processes; more quality in teaching; more prestige added to the diploma; more attractiveness for the study programs; more famous professors and the like, these are not either much visible or aggressive as expected.

Attempts were made to substantiate or reject the information obtained through the questionnaire so that to learn more about the competitive intentions of both universities. For the purpose, documents were consulted; and additional information was extracted through interview schedules. Accordingly, the tendency of AAU and BDU to outperform others is reflected in different documents. For instance, the inclination of AAU to outperform others is shown in its vision statement, i.e., “*Addis Ababa University aspires to be among the top ten pre-eminent African graduate and research Universities in 2023*” (AAU, 2013h: 8). It is also found that AAU is strategically initiated for the enhancement of local and international standing, achievement of positive image, improvement of reputability, and attainment of world top ranking through strengthening of global linkages and partnerships, enhancing of staff and student exchanges, building of public image, and attracting of experts and budget (AAU, 2013d: 82). Recently, the CSIC's website that ranks World Universities announced that AAU stands the first University in

Ethiopia and the 18<sup>th</sup> in Africa (<http://www.webometrics.info/en/Africa/Ethiopia> and <http://www.webometrics.info/en/Africa>). This is a huge leap for the university that was ranked as the 56<sup>th</sup> in Africa last year (AAU, 2015a:11). BDU is found to be 111<sup>th</sup> in Africa.

The data obtained from interview schedules confirm that AAU is doing its best to attain such strategic directions. Correspondingly, the predisposition of BDU to do better than others is also reflected in its vision statement i.e. *“The vision of the Bahir Dar University is to become one of the ten premier research universities in Africa in 2025”* (BDU, 2011:6). Further, the statements coined by the Business Enterprise of BDU (Poly-Peda PLC, 2015) could be an indication of the competitive intention of the university i.e.

Within our position we have many significant competitors, they are not bigger but less capable than us, not operating mainly in our same position, resourced with competent human resource whose marketing will not be better. In general, however, our competition is not in our position. We compete against generalized printing producers and furniture manufacturers and the ordinary products in the major printing products and furniture channels. We are sure that people will choose our product. People won't choose lesser quality and ordinary materials instead of the quality printings and furniture we offer. Most importantly customer handling is one of the most substantial concern that the enterprise pays (Poly-Peda PLC, 2015:9).

Therefore, though the visions of both universities do not reflect the combative posture of the institutions, success towards their respective vision cannot be attained without hard work to become visible and much more competitive than the competitors' offer. Rather, the vision statements of both universities tend to call for more quality in teaching; more visible and much more competitive research; more attractive study programs; more famous professors; and generally, well organized university and more entrepreneurial engagements. In addition, some interview informants were of the view that the current competitions that the universities are encountered with are visible though difficult to describe the volume, duration, complexity and of predictability of such competitions. This may indicate the low combating posture and less

aggressive attitude among the institutions at hand, which implies the prevalence of limited entrepreneurial orientation, especially in working toward outperforming from others or competitive aggressiveness. Nonetheless, examples of visible competitions cited by respondents are those which came not only within the country from public universities for quality, efficiency and effectiveness but also from private HEIs for at least continuing and distance students, for staff and research projects. These imply that AAU and BDU are aware of the possible competitions at a global world level for institutional excellence in all respects and for the required entrepreneurial responses.

The accomplishments of AAU and BDU in competitive aggressiveness were explained by interview informants to be reflected through the institutional engagements ever made to attract qualified staff and part-time students. In addition, some informants argued that AAU and BDU are observed while conducting increased market surveillance, especially for the programs other than the regular undergraduate ones. For instance, it is explained by a respondent that

...it is easy to sense that business and advertizing cultures of the universities through the national media that call for quality professors, students and research outputs are going increasing. This reveals that universities are commonly competing not only for quality teaching, research and community services but also for businesses.

This is in agreement with the views of researchers like Duening & Sherrill (2005) in Rashid, et al. (2015: 550) that increasing entrepreneurial activities in the universities have left universities with no choice but to re-invent their operational activities and engage themselves in entrepreneurial activities to remain competitive globally. Though entrepreneurial activities are associated with the profit making but universities engagement in entrepreneurial activities is merely to stay economically healthy. Hence, innovation and commercialization has become an essential agenda for universities to survive in the competitive environment.

Table 6.5

## Risk Taking in AAU and BDU

Items	University				t (2-tailed) df=76
	AAU (n=38)		BDU (n=40)		
	Mean	Std. Dev.	Mean	Std. Dev.	
RI1. Commitments of resources to projects where the outcome might be groundbreaking, however, the probability of success is low	2.34	1.169	3.13	1.114	
RI2. Business risk taking: observed with entry of the new market prior to testing or using untested technology	2.37	1.051	2.98	1.050	
RI3. Consideration of the term “risk taker” as a positive attribute for people in the university	2.37	1.101	2.93	1.071	t= -2.456
RI4. Prevalence of risk-friendly approaches towards entrepreneurship in the university and committing resources	2.50	1.109	2.90	.928	
RI5. Eagerness to exploit new entrepreneurial opportunities and methods even though with a probable of failure	2.61	1.128	2.98	1.050	
<i>Mean and test- of significance on Risk-taking Category</i>	2.4368	1.01434	2.9800	.93896	P=.016

Table 6.5 above shows the mean score of responses from AAU and BDU for the 5 items meant to measure the ‘risk-taking’ category of the entrepreneurial orientation variable. Of the five items, it is only for the first item that respondents in AAU (M= 2.34, SD= 1.169) and BDU (M= 3.13, 1.114) are in a different views i.e. ‘Commitments of resources to projects where the outcome might be groundbreaking, however, the probability of success is low’. Otherwise, the mean scores of the 4 items (RI2, RI3, RI4, RI5), out of 5 in Table 7 are below the mid-point (M=3.0) for the category of both university respondents. Nevertheless, the rated grand mean score on the ‘risk-taking’ category displays that responses from BDU rated higher (M=2.9800) than AAU (M=2.4368), though respondents from both institutions display about the prevalence of below average risk-taking behavior’. However, the calculated tests of significance shows that there is a statistically significant difference between the two universities with regard to ‘risk-taking’ [(t<sub>(76)</sub> =-2.456, p <.05)]. Therefore, the results reveal that the entrepreneurial ‘risk-taking’ behavior in AAU tends to be relatively lower as compared to BDU.

However, according to Smith, (2009:34), colleges and universities are much more complex since their goals are not always measured in terms of dollars and defining success often involves value judgments in such circumstances. Therefore, to determine the entrepreneurial orientation of AAU

and BDU in terms of a risk-taking construct and to check the actual risky engagements of both universities, this study attempted to extract information from documents and interviews on the degree to which AAU and BDU are willing to make large and risky commitments. Consequently, the risk-taking behavior of AAU in business, management and image aspects are reflected by the establishment of an umbrella company of the Addis Ababa University Business Enterprise (AAUBE) consisting different business units with the seed fund of Birr10 million (excluding fixed assets) allotted to run the company wouldn't have been observed, if the university lacks entrepreneurial behavior in general and risk-taking construct in particular. Ultimately, the main objective of engaging in such business & investment activities is described to be related with entrepreneurial activities mainly with the generation of revenue that would eventually enable AAU to achieve its long term aim for self-reliance. In addition, the company is supposed to enable the vast academic community of AAU to provide adequate professional services and enjoy the benefits of their works, which in turn provides a golden opportunity for AAU to motivate & retain its staff for sustainable growth. Furthermore, AAUBE is designed to serve as knowledge management center, a venue for research & development, as well as technology dissemination & transfer, where both academicians & practitioners work together for further innovation & sustainable development (AAU, 2014c).

In the same way, it is found that BDU has also engaged in business, management and image-related risk-taking behaviors through the establishment of income generating enterprise which has its own legal personality with a seed capital of Birr, 100 Million and is starting to operate like any business. The company is also organized in compliance with all legal requirements of the country (BDU, 2014b). This indicates the profit making motive of BDU but under risky circumstances. Thus, what are observed in AAU and BDU in establishing enterprises, commitments of resources for the establishments for instance, indicate their consideration of a 'risk taker' behavior as a positive attribute and eagerness to exploit new entrepreneurial opportunities.

Nevertheless, in spite of risks of business, management and image associated with unexpected failures the risk-taking behavior demonstrated in both AAU and BDU are indications of entrepreneurial measure which concerns with testing their boundaries than with stabilities; and valuing of entrepreneurial cultures than the traditional 'ivory-tower' positions though there seems variations in ratings of risk-taking behavior to be higher in BDU than AAU.

Generally, among the 5 constructs within the entrepreneurial orientation of universities, the multi-dimensional tests show that significant variations are found in the two i.e., ‘autonomy’ and ‘risk-taking’ but nearly equal in the remaining three constructs. However, it is found to be important to test the entrepreneurial orientations as a uni-dimensional variable and therefore, the test of MANOVA is conducted and presented as shown in Table 6.6 and Table 6.7 respectively.

Table 6.6

Tests of Equality of Covariance Matrices and Equality of Error Variances on Entrepreneurial Orientation Variable

	Variable	Constructs	Box's M	F	df1	df2	Sig.
Levene's Test of Equality of Error Variances		Autonomy		6.267	1	76	.014
		Innovativeness		2.806	1	76	.098
	Entrepreneurial Orientation	Proactiveness		.396	1	76	.531
		Competitive		.733	1	76	.395
		Aggressiveness		.733	1	76	.395
		Risk Taking		.112	1	76	.739
Box's Test of Equality of Covariance			16.924	1.048	15	23118.772	.401

Levene’s test and Box’s M test are shown in Table 6.6 above. It is observed that the Box’s M test of the equality of variance-covariance matrices is not significant,  $F(15, 23118.772) = 1.0418$ ,  $p > .05$ , indicating equality or homogeneity between AAU and BDU in entrepreneurial orientation. As it was argued by Meyers, et al. (2006:105), a non-significant Box’s M-Test indicates equal covariance between the dependent variables for the groups composing the dependent variable. Here, the assumption of equal dependent variables (entrepreneurial orientation and its constructs) covariance matrices is supported. In addition, the separate Levene’s Tests for each constructs are not statistically significant either ( $P > .05$ ), except the ‘autonomy’ construct (0.14). The Levene’s test for the ‘autonomy’ sub-variable indicates  $F(1, 76) = 6.257$  and  $p < .05$ , which is statistically significant that justify as sample variances are not equal, thus necessitating the use of a separate variance estimate when evaluating the difference between the group means. Nevertheless, it is not considered as an extreme to be deleted since its effect is not reflected in Box M test and some other examinations of the outliers above. Thus, equal variance is confirmed.

Table 6.7

## MANOVA Tests on Entrepreneurial Orientation

Variable	Effect		$\Lambda$	$F$	$df 1$	$df 2$	$p$	Partial Eta Squared $\eta^2$
Entrepreneurial Orientation	Intercept	Wilk's Lambda	.049	279.990	5.000	72.000	.000	.951
	University	Wilk's Lambda	.870	2.161	5.000	72.000	.068	.130

The top 'Intercept' portion of Table 6.7 evaluates the overall mean differs from zero. Because of its statistical significance, it is concluded that each does differ from zero, indicating entrepreneurial orientation varies across AAU and BDU. However, using the Wilk's Lambda criterion, the multivariate effect of the university on the 'entrepreneurial orientation' variate is insignificant ( $P > 0.05$ ). With the use of Wilk's lambda ( $\Lambda$ ) criterion, no statistically significant difference was observed among the universities with regard to the factors of the 'entrepreneurial orientation',  $F(5, 72) = 279.990, p > .05$ . The Partial Eta Squared ( $\eta^2$ ) = .951 show the proportion of variance with the university independent variable. Thus, since the MANOVA result showed no significant overall difference in relation to the entrepreneurial orientation between the universities, the univariate test results were not examined. Therefore, it can be concluded that even though the mean scores in the descriptive statistics displayed from Table 1-5 seem to reveal about the availability of some variations between AAU and BDU within each constructs, i.e., autonomy, innovativeness, proactiveness, competitive aggressiveness and risk-taking behavior, the MANOVA test result does not indicate for the presence of statistically significant differences on entrepreneurial orientation.

Of course, there are practices in AAU and BDU along the key dimensions that characterize an entrepreneurial orientation which are proved not only from questionnaire data but also through the examined documents and reported interviews. The observed entrepreneurial practices in both universities are in parallel to the explanations by Lumpkin and Dess (1996) about entrepreneurial orientation which include *"a propensity to act autonomously, a willingness to innovate and take risks and a tendency to be aggressive toward competitors and proactive relative to marketplace*

*opportunities*". These are more or less visible in AAU and BDU but the results also suggest the adaptation of more entrepreneurial orientation as a response to institutional pressures.

### **6.1.2 Entrepreneurial Performances**

This sub-section presents findings on university entrepreneurial performances. The variable consists of 4 constructs namely, knowledge/ technology transfer, internationalization, entrepreneurship education and pathways for entrepreneurs. For this purpose, the data collected from the office holders of AAU (n=38), and BDU (n=40) through the questionnaire are presented and analyzed descriptively. In addition, data obtained from documents, observations and interview schedules is used to triangulate and test the entrepreneurial performances of AAU and BDU. Afterwards, interpretations are given based on the mean values of each item, each construct, and as a final point statistical test is administered on the dimension of 'overall entrepreneurial performances' so that to capture the institutional proximity to entrepreneurial university and to find out if at all there are institutional differences in this variable.

Table 6.8

## Performances in Knowledge Transfer/Exchange in AAU and BDU

Items	University				t (2-tailed) df=76
	AAU (n=38)		BDU (n=40)		
	Mean	Std. Dev.	Mean	Std. Dev.	
Our University...					
KT1...has committed to knowledge exchange with industry, society and the public sector with provisions of clear policy guidance on how relationships can be formed and managed.	3.13	1.018	3.05	.932	
KT2...has involved in partnerships and relationships with regional and local organizations, Small and Medium Enterprises (SMEs), schools, TVET colleges, alumni and entrepreneurs.	3.03	.915	3.15	1.001	
KT3...has maintained linkage with incubators, science parks and other external initiatives to create opportunities for dynamic knowledge exchange in both directions.	2.63	.970	2.80	.911	t= -1.244
KT4...has set support mechanisms for staff and students in knowledge exchange and collaboration with the external environment through formal or informal business/external entrepreneurial ...	2.76	.883	2.93	.917	
KT5...has put support systems to staff and student mobility between academia and the external environment such as internships, teaching and research exchanges etc...	2.76	.913	3.05	1.037	
KT6...has increased the use of knowledge created and co-created by research, industry, entrepreneurs and the wider community through the form of commercial and industrial partners, collaborations, contract works etc.	2.68	.933	2.90	.900	
KT7...has conducted the gathering and using of knowledge such as timely and quality market research, new advisory groups, or trend reports for decision-making	2.68	.933	2.78	.974	
KT8...has an increased engagement in scientific research for local economic development.	2.92	.912	3.13	.939	
KT9...has increased the amount of spending on Research and Development.	2.79	.991	3.48	.905	
KT10...has established technology transfer offices to market faculties' inventions.	3.18	1.010	3.33	1.047	
<i>Grand mean and test- of significance on knowledge transfer category</i>	2.8579	.74567	3.0575	.67097	<i>P= .217</i>

The data in Table 6.8 shows the descriptive statistics measuring the 'knowledge transfer/exchange' performance of universities using 10 items rated using a five- point Likert scale. The mean scores show that three items (KT1, KT2, and KT10) are rated greater than the mid-point ( $M > 3.0$ ) in both universities which reveal about the availability of better knowledge transfer attempts in relation to 'provisions of clear policy guidance on how relationships for

knowledge exchange can be formed and managed' (AAU, M=3.13, SD= 1.018; BDU, M=3.05, SD= .932); 'involvements in partnerships and relationships with regional and local organizations, Small and Medium Enterprises (SMEs), schools, TVET colleges, alumni and entrepreneurs' (AAU, M=3.03, SD= .915; BDU, M=3.15, SD=1.001); and 'gathering and using of knowledge such as timely and quality market research, new advisory groups, or trend reports for decision-making' (AAU, M=2.68; SD=.933; BDU, M= 2.78, SD= .974).

It is important to note that, the mean score results of 4 items (KT3, KT4, KT6 and KT7) show to be rated below the mid-point ( $M < 3.0$ ) by respondents of both universities, and the mean scores for the remaining 3 items (KT5, KT8, and KT9) display some variations between the rated mean scores of both universities (AAU under the  $M < 3.0$ , while above  $M > 3.0$  in BDU). The rated grand mean score on the 'knowledge transfer' category displays that responses from BDU rated higher ( $M = 3.0575$ ) than AAU ( $M = 2.8579$ ). However, the t-test result show that there is no a statistically significant difference between the two universities with regard to 'knowledge transfer' [ $(t_{76}) = -1.244, p > .05$ ]. Therefore, the 'knowledge transfer' category of the entrepreneurial performances component in both universities is at average level of accomplishments.

It is explained that through knowledge and technology transfer, universities may take a central place in the development of many aspects of a region's culture, especially, drawn into playing a stronger regional social and economic development role in many ways. In this regard, Arbo and Benneworth (2008) illuminated that universities can take on the responsibility of being a leading network hub for a focus upon regional development; can act as animators for the development of sustainable networks of exchange on important issues; and can focus upon supplying skilled young people. Accordingly, informants in both universities reveal that their respective universities are involved in different knowledge/technology transfer activities under the coordinating efforts of Technology Transfer Offices (TTOs) like : acting as a major learning source for regional stakeholders through their outreach education and training programs; supplying a number of skilled young people, at least annually in mass, to the country in general and the region in particular; throwing light on key development issues and acting as a means for independent evaluation via their basic and applied researches, conferences, symposiums and workshops; striving to contribute as a leading network hub for regional development issues through contract researches and consultancy services; supporting the community through different specialties and

expertise; and acting as an intermediary in articulating regional development issues to central government in areas of technology, education and skills development.

Attempts were made in this study to extract data about knowledge transfer activities in AAU and BDU from documents, interview schedules and observations using a checklist (See Table 6.9 below).

Table 6.9

Types of Knowledge Transfer Approaches Practiced in AAU and BDU

Type of approach	AAU	BDU
Licensing	√	√
Spin-offs	X	X
Technology transfer offices	√	√
Technology brokers	X	X
Science parks (other than Botanical gardens)	X	X
Incubators	√	√
Support for graduate entrepreneurship	X	X
Research contracts and consultancy	√	√
Collaborative research	√	√
External training	√	√
Mobility programs for research staff	√	√
Student placements in enterprises	√	√
Technology centers	√	√
Technology networks	X	X
Venture capital funds	X	X
Cluster initiatives	√	√

Key: √ (observed)      x (not observed)

Table 6.9 displays types of knowledge transfer approaches practiced in AAU and BDU. The lists of approaches were adapted from Potter (2008:326-328). Hence, in both universities what is practiced and neglected looks the same. For instance types of technology transfer approaches related to licensing, technology transfer offices, incubators (mainly ICT-related), research contracts and consultancy, collaborative research, external training, mobility programs for research staff, student placements in enterprises, technology centers, and cluster initiatives tend to be practiced; while spin-offs, technology brokers, science parks, support for graduate entrepreneurship, technology networks and venture capital funds are not actually observed. Therefore, the lists of knowledge transfer approaches that tend to be practiced in AAU and BDU

are positive achievements toward entrepreneurialism, and need further strengthening in breadth and depth; however, those aspects that seems to be yet to be started are to call for urgent attitudinal and practical responses because, as it was argued by HEInnovate (2012), knowledge exchange is determined by the perceptions of the respective "other". A negative attitude towards entrepreneurship, entrepreneurs and businesses within a higher education institution can limit and hinder network formation and collaboration with business partners. Communication that ensures both sides of a knowledge exchange network has a clear understanding of respective expectations, limitations and requirements; and it is a major building block of the entrepreneurial higher education institution.

Table 6.10

## Performances in Internationalization in AAU and BDU

Our University...	Addis Ababa University (n=38)		Bahir Dar University (n=40)		t (2-tailed) df=76
	Mean	Std. Dev.	Mean	Std. Dev.	
	Items				
IR1...has integrated internationalization as a key part of the university's entrepreneurial strategy	2.84	1.001	2.98	.947	
IR2...has expanded its international operations through strategic alliances and partners	2.84	1.027	2.83	1.059	t=.706
IR3...has increased international institutional agreements	3.11	.981	3.10	1.008	
IR4...has increased international research collaboration and partnerships	3.11	.894	3.05	.932	
IR5...has increased use of visiting scholars	3.00	1.013	3.80	6.422	
IR6...has increased international development projects	2.89	.981	2.80	1.018	
IR7...has organized joint extra – curriculum activities	2.79	1.018	2.90	.900	
IR8...has looking for overseas campuses	2.42	.976	2.73	1.086	
IR9...has developed international networks for teaching, learning and research	3.08	1.050	2.78	1.050	
IR10...has increased the attraction of international faculty to the university	3.00	1.013	2.65	1.167	
IR11...has international fee paying student recruitment	2.32	.904	2.13	.966	
IR12...has introduced distance and e-learning services abroad.	2.42	1.030	2.05	1.085	
IR13...has increased use of international cultural dimensions in curriculum	2.58	1.106	2.45	.986	
IR14...has an arrangement for the international mobility of university staff through exchange schemes,	2.71	1.037	2.53	1.012	
IR15...has increased packages of mobility/exchanges for students	2.58	.976	2.33	.859	
IR16...has maximizing learning exchanges between national and international	2.63	.998	2.30	.966	
<i>Grand mean and test- of significance of internationalization category</i>	2.7697	.79524	2.7109	.86622	<i>P=.756</i>

Table 6.10 displays the results of the descriptive statistics on the entrepreneurial performances of AAU and BDU in 'internationalization' as measured by 16 items of a five-point Likert scale. From the mean scores of ratings, it can be understood that respondents in both AAU and BDU

showed agreements nearly in 14 items out of the 16 items (87.5%), of which, 3 items (IR3, IR4 and IR5) are rated above the mid-point ( $M > 3.0$ ) and 11 items (IR1, IR2, IR6, IR7, IR8, IR11, IR12, IR13, IR14, IR15, and IR 16) are rated below the mid-point ( $M < 3.0$ ). Mean variations are observed only in ratings of 2 items (IR9 and IR10) out of 16 (12.5%) whereby respondents of AAU rated above the mid-point ( $M > 3.0$ ) while below in BDU. The results suggest that the entrepreneurial performances in internationalization along the aspects of the above 11 items are either low or moderate in both universities which call for improvement. Even though the rated grand mean score on the ‘internationalization’ category displays below the mid-point ( $M = 3.0$ ) in both universities, it is found that responses from AAU rated higher ( $M = 2.7697$ ) than BDU ( $M = 2.7109$ ). However, the t-test result show that there is no a statistically significant difference between the case study universities with regard to ‘internationalization’ [ $(t_{(76)} = .312, p > .05)$ ]. Therefore, the means scores of ‘internationalization’ category of the entrepreneurial performances component in AAU and BDU being below average proves that the responses from universities to the impacts of globalization and absorbing its effects, through the widening, deepening and speeding up of worldwide interconnectedness is either not visible to respondents as required; or not accomplished as expected by the entrepreneurial universities.

The attention given to internationalization in the case study universities is reflected by the establishments of relevant offices dealing with external relations and communications that have been working in bringing new collaborations, strengthening the existing ones, coordinating and facilitating the signing of new Memorandum of Understandings (MoU) with various local, national international institutions. For higher education institutions, internationalization has both a ‘*business*’ dimension, which brings-in additional revenues from international student fees and an *academic/reputational dimension*, which brings local and international rewards, enrichment of the diversity and interests, as well as career prospects of academic staff.

In an endeavor made to identify the internationalization strategies and practices in AAU and BDU, documents and interview informants reveal that related entrepreneurial practices are going on in both fronts, i.e., ‘internationalization at home’ and ‘internationalization abroad’ but more of toward the academic/ reputational dimension rather than the business one. For instance, in relation to the former, the case study universities reported to have taken measures to align programs not only with the national needs, priorities, and capacities but also with international

standards; and made the respective consideration to make the curriculum of the regular; continuing and distance learning programs meet the standards to the international level. Meanwhile, data discovered from documents and interviews in the case study universities reveal that there are continuous efforts to change the perception of customers/stakeholders and the wider community towards the learning and teaching activities of respective universities through doing improvements in the quality of graduates in such a way that the knowledge and skill they acquired are up to the satisfaction of the market (AAU, 2013d:27; BDU, 2012b).

For instance, the extensive use of ICT supports in the teaching learning system and access to the networked worldwide web to exchange knowledge in real time are few examples cited as part of internationalization at home. Further, the expansion of foreign language learning units other than English like the Chinese Unit in both universities; and particularly in AAU, including the French Unit, Arabic Unit, and Modern European Languages Unit at undergraduate level are forms of internationalization at home to be cited. Moreover, the efforts made by AAU to involve over 1326 high level scholars and visiting professors from different universities abroad (using a SIDA, Sweden block grant) in block teaching, advising graduate students and developing in research programs and the creation of opportunities for the members of qualified Diaspora to participate in the PhD programs are samples to be mentioned for the attention given to the internationalization at home scheme (AAU, 2015a: 12). Nonetheless, of the current 2449 academic staff in AAU, only 95 (4%) are expatriates. However, if the reported accomplishments holds true in both universities, as described by Knight (2008) and Brennan, et al. (2014), more concerns about the comparability of qualifications acquired within different national systems, the internationalization of the curriculum, the links with an increasingly internationalized labor market and the concerns of institutions and academics to reference themselves against the supposedly '*best*' and '*world class*' universities are important markers of internationalization at home that needs to be strengthened further.

With regard to internationalization abroad, informants from the case study universities described that especially, cross-border collaborative agreements made until recently, have scaled up the establishment of a network of collaborative partnerships with different national and international universities, multi/bi-lateral organizations, donors, NGOs, embassies, foundations, and businesses (See sub-section 6.2.5). There were also some opportunities of international exposures

facilitated in AAU with the SIDA Block Grant Project, for 728 PhD candidates and faculty which enhanced their experience in conducting research (AAU, 2015a : 12). From both universities, there were few opportunities for faculty members to pursue their M.Sc. or Ph.D. abroad; however, except very few staff exchanges often through donor funded projects; no records about systematic exchange programs either for student or staff; there is also no student recruitment from international markets. Of course, it was understood from the incident of a two days training on university internationalization from March 12-13, 2015 at Addis Ababa University which was jointly held as part of the efforts in expanding the multiple academic and research partnerships with the Ohio State University. There, the underlined fact was on the needs to have better implementation of comprehensive internationalization at all levels in higher education institutions. It was further indicated that the office is in the pipeline to officially launch an office of International Students and Scholars to help the university's effort towards comprehensive internationalization (March 24/2015; [http:// www.aau.edu.et](http://www.aau.edu.et)).

Data from the two case university studies display that most of the international abroad aspects are mentioned as the underdeveloped aspects in both universities, mainly, international mobility of scientists and students to new research environments; partnerships with higher education institutions abroad that facilitate staff and student exchanges; international joint degree programs; opening of campuses abroad; opening up of wider links through distance learning approaches; building stronger linkages with local international businesses and closer engagement with alumni abroad. Moreover, this study doesn't discover for the size and composition of international fee paying students in AAU and BDU, if at all recruitment of such cohorts are available, informants described not for individual applicants but for countries or organizations under definite agreements. Reasons given are funding issues and inability to meet the domestic demand.

Table 6.11

## Performances in Entrepreneurship Education in AAU and BDU

Our University...	Items	University				t (2-tailed) df=76
		AAU (n=38)		BDU (n=40)		
		Mean	Std. Dev.	Mean	Std. Dev.	
EE1...has created structures/ posts for entrepreneurship to stimulate and support for the development of entrepreneurial mindsets and skills among students	2.97	1.026	2.65	.975		
EE2...has increased the breadth and depth of education ABOUT entrepreneurship	3.05	.899	2.70	.853		
EE3...has increased the breadth and depth of education FOR/IN entrepreneurship	3.00	.805	2.70	.853		
EE4...has increased efforts towards producing job-creators than job-seekers	2.71	.802	2.65	1.027	t= -1.085	
EE5...has increased use of a range of entrepreneurial approaches to teaching in all departments promoting diversity and innovation among students	2.87	.906	2.58	.931		
EE6...has increased supports to the maturity of entrepreneurial behavior among students through the teaching/learning opportunities and extra- curricular activities	2.84	.789	2.73	.933		
EE7...has increased the involvement of individuals from outside academia, such as guest lecturers or alumni with entrepreneurial attitudes, behaviors and experiences	2.82	.865	2.85	1.027		
EE8...has attempted the validation of the entrepreneurship learning outcomes and updated processes of entrepreneurial course	2.74	.795	2.75	1.006		
EE9...has increased collaborations and partnerships with communities, local organizations, local government, chambers of commerce and alumni as a key component of entrepreneurial teaching and learning development in the University	2.76	.913	2.88	.966		
EE10...has attempts on integration of research results into entrepreneurship education and training to keep the curriculum up-to-date with recent research findings and to encourage the internal exchange of knowledge.	2.68	.904	2.83	.931		
<i>Mean and test- of significance of entrepreneurship education category</i>	2.8447	.68879	2.7300	.74324	<i>P=.482</i>	

Table 6.11 indicates the state of ‘entrepreneurial education’ in Addis Ababa and Bahir Dar Universities which was tested using 10 items measured by a five-point Likert scale. From the results, it is possible to see mean variations are observed only in two items related to the ‘increased use of the breadth and depth of education ABOUT entrepreneurship’ (AAU, M= 3.05, SD= .899; BDU, M= 2.70, SD=.853) and ‘increased use of the breadth and depth of education FOR/IN entrepreneurship’ (AAU, M=3.00, SD=.805; BDU, M=2.70, .853), which

imply the availability of better accomplishments in AAU. All the other 8 items out of 10 (80%) are rated by respondents of both universities below the mid-point ( $M < 3.0$ ), which implies that the entrepreneurial performances of universities in relation to 'entrepreneurial education' is either too low or unknown by the majority of respondents. The rated grand mean score on the 'entrepreneurship education' category displays below or near the mid-point ( $M = 3.0$ ) in both universities, though responses from AAU rated higher ( $M = 2.8447$ ) than BDU ( $M = 2.7300$ ). However, the t-test result, still, demonstrate that there is no a statistically significant difference between the two universities with regard to 'entrepreneurship education' [ $(t_{(76)} = .706, p > .05)$ ]. Therefore, the rated mean scores on 'entrepreneurship education' category of the entrepreneurial performances component being below or near to the mid-point in the case study universities imply that the accomplishments of sustainable and effective entrepreneurship education is nearly at the average level in both AAU and BDU.

According to the European Commission (2008), entrepreneurship education programs can have different objectives, such as: developing entrepreneurial drive among students (i.e., raising awareness and motivation or developing entrepreneurial capacities and mindsets); training students in what is needed to set up a business, and to manage its growth; and developing of the entrepreneurial abilities needed to identify and exploit business opportunities in higher education. In this study, data was extracted about the models/ principles practiced within the implementation of entrepreneurship education in AAU and BDU through documents, interview schedules and the observation, in addition to the questionnaire (See Table 6.12 below).

Table 6.12

## Models/ Principles Practiced for Entrepreneurship Education in AAU and BDU

No.	Models/Principles in Entrepreneurship Education	AAU	BDU
1	Delivery of entrepreneurship programs as a majoring field of study to undergraduate or post-graduate degree levels.	X	X
2	Provision of entrepreneurship as an integrated and synthetic subject in a business school with a 'practical' flavor and opportunities for students to learn through reflection-in-action.	√	√
3	Spreading of entrepreneurship education as an add-on subject beyond the business school.	√	√
4	Embedding of entrepreneurship studies across the curriculum to create multidisciplinary knowledge other than only addressing it by one (marginal) subject.	X	X

Key: √ (Observed) X (Not Observed)

Table 6.12 displays the models applied in AAU and BDU in the implementation of Entrepreneurship Education, it is found that 'Entrepreneurship as an integrated and synthetic subject' is offered in the Colleges of Business and Economics; and 'Entrepreneurship as an add-on subject' is offered in the Institutes of Technology. The course consists a load ranging from two-three credit hours and given within one of the semesters either at or before the graduating year of the study programs. The title of the course varies as 'Entrepreneurship and Enterprise Development', 'Entrepreneurship', 'Entrepreneurship & Small Business Management', and 'Entrepreneurship for Engineers'. This interdisciplinary course is designed to introduce students to the concept of sustainable entrepreneurship, and its focus is on building entrepreneurial attitudes and behaviors that leads to creative solution within community and organizational environments. Course topics include the history of entrepreneurship, the role of entrepreneurs in the 21st century global economy, and the identification of entrepreneurial opportunities. Further, the elements of creative problem solving, the development of a business concept/model, starting and financing a new venture, the examination of feasibility studies and the social /moral/ethical implication of entrepreneurship are incorporated (AAU, 2015e and BDU, 2015c).

Table 6.13

## Dimensions of Entrepreneurship Education in AAU and BDU

N	Dimensions	Focuses of document observation	AAU	BDU
1	Embodiment of entrepreneurship in the overall strategy of the institution	Entrepreneurship strategies to embed entrepreneurship education throughout the university.	X	X
		Institutional action plan for how to achieve the goals set out in the overall entrepreneurship strategy.	X	X
		Availability of board of directors for entrepreneurial engagement	X	X
2	Institutional Infrastructure/ Characteristics	Outreach packages for developing entrepreneurial mindsets to gain practical experience through internships	√	√
		Opening doors of the university to external mentors, trainers, alumni enter the institution.	√	√
		Dedicated research activities in the entrepreneurship field.	X	X
3	Development of need-based entrepreneurship courses; and development of skills	Identification of the needs and wishes of the present and past direct and indirect end-users in relation to entrepreneurship.	X	X
		Evaluations conducted about impact of previous entrepreneurship studies	X	X
		Development of skills and competencies of the staff teaching entrepreneurship	X	X
4	Resources, i.e., financial, human	Creation of entrepreneurship centers with financial support from business and public agencies	X	X
		Professors with specialization in entrepreneurship to teach the courses	X	X
		UIL offices, Centers or clubs to organize entrepreneurial curricular and extracurricular activities	√	√
		Use of Magnetic model to facilitate entrepreneurship classes offered to students from all departments by a single entity	X	X
		Use of Radiant model where individual departments develop their own entrepreneurship faculty and course offerings	√	√
5	Teaching about 'for' and 'through' entrepreneurship	Teaching "about" entrepreneurship: a content-laden and theoretical approach	√	√
		Teaching "for" entrepreneurship: an occupationally oriented approach aiming at giving budding entrepreneurs the requisite knowledge and skills	√	√
		Teaching "through" entrepreneurship: a process based and often experiential approach	√	√

Key: √ (Observed) X (Not Observed)

Table 6.13 above shows the dimensions of entrepreneurship education in AAU and BDU. Regarding the Embodiment of entrepreneurship in the overall strategy of the institution, it was difficult to get a compiled strategy document about entrepreneurship except the stand-alone ones like syllabus and its rationale; and the institutional vision statements and strategic objectives that provide a clue as the issue is not the neglected aspect. Examples are Strategic Objective 1 of AAU: which states about 'the satisfying of customers/stakeholders by delivering quality and marketable education to students and producing competent graduates who are able to demonstrate and apply their knowledge, skill and entrepreneurial attitude into practice towards solving societal problems' (AAU, 2013d:26). Further, Strategic Objective 5 of AAU, which focuses on 'improving curricula

with a view to equip students with relevant and up-to-date knowledge as well as sellable and problem solving skills that enables them to perform well in the society' (AAU, 2013d:27). Therefore, except such type of stand-alone expressions, this study does not come across concrete policy or strategic or action plan documents about entrepreneurship education in both universities.

Accordingly, documents and informants show that most engineering and most medical sciences programs of AAU and BDU have a minimum of one semester industrial internship programs as part of their undergraduate degree curricula. During this time, the students get the opportunity to see real industry problems as their graduation project and can result in solutions of industry problems. This matches a public policy rhetoric which goes beyond industry demand towards articulating the need to equip students at all levels in the education system with personal entrepreneurial capacities to deal with greater levels of uncertainty and complexity in both their work and personal life (Ravasi & Turati, 2005; Gibb, 2007). Thus, this study is in line with the findings of Mudde, et al. (2015) which reveals that the main intention of the program is not to enhance entrepreneurial behavior of students but to enable students to gain exposure to the real working environment for their future career and to have practical exposure on how certain production or service rendering activities are provided.

The entrepreneurial orientation of a university is realized when graduates are taught in the context of entrepreneurship courses and whenever universities strive to create an infrastructure for entrepreneurship within their campus (Franz, 2013:72). Consequently, informants of AAU and BDU disclosed about the establishments of UIL offices, Centers or Clubs to organize entrepreneurial curricular and extracurricular activities but no boards of directors specifically for entrepreneurship. In addition, respondents in both universities show that institutions use radiant model to facilitate teaching of entrepreneurship, whereby individual departments assign their own teachers of entrepreneurship and course than using a magnetic model. There are also practices in AAU and BDU towards teaching about 'for' and 'through' entrepreneurship; outreach packages for developing entrepreneurial mindsets to gain practical experience through internships. Lectures on themes such as market analysis, venture creation, new product development, project management, financing, strategy development etc.; preparing of business plans individually or in teams and classroom-based competitions for the best business plans; presentations and discussions about real company/entrepreneur experiences of business creation, growth, adaptation

and failure are reported to be the usual practices in the course works (AAU, 2015e and BDU, 2015b).

In addition, the doors of the university are open to external mentors, trainers, alumni to enter the institution and to teach entrepreneurship. Thus, individuals who have had entrepreneurship training/education are more likely to start a business than those who have not had entrepreneurship education/training (Martin, et al., 2012). However, the findings of Mudde, et al. (2015) reveal that the main intention of the entrepreneurship education program in Ethiopia is not to enhance entrepreneurial behavior of students, but to enable them to gain exposure to the real working environment for their future career and to have practical exposure on how certain production or service rendering activities are provided; so does in the case study universities.

Essentially, entrepreneurship development through teaching and learning requires something else than standard textbooks and ordinary classroom settings. An 'entrepreneurial' pedagogy seeks to enhance entrepreneurial capacities and capabilities amongst students by giving them more autonomy and responsibilities in the learning process through experimental, collaborative and reflexive learning (HEInnovate, 2012). In particular, the most important reason for providing entrepreneurship education may be to meet the needs of individuals who wish to become entrepreneurs/businessmen (McMullan & Long, 1987). However, no attempts are observed in the case study universities, in addressing entrepreneurship studies as a majoring field of study, either at undergraduate or post graduate level; and no embodiments of the entrepreneurship education across the curriculum to create multidisciplinary knowledge other than addressing it by one (marginal) subject in the reported units. Moreover, from the responses of informants, it is possible to understand that the following aspects of entrepreneurship education tends to be given low attention in both universities i.e., entrepreneurship focused research (except very few individuals' Master theses in AAU); development of need-based entrepreneurship courses and assessments of impacts; participation of students in consulting projects with the support of university staff; courses for prospective teachers of entrepreneurship to understand the entrepreneur's environment and behavior and to develop their teaching approaches. These are against the suggestion by Shattock (2009:51) that a university acting entrepreneurially in relation to its teaching and learning functions shall implicitly, at least reviewing its curricula in terms of *knowing*, *acting*, and *being* because from the process, the university can be sure whether or not it

is offering a curriculum which is current in knowledge terms so that to assist students' engagement with external settings; and expand their confidence to live in a changing and complex world.

Table 6.14

Entrepreneurial Performances in Pathways for Entrepreneurs in AAU and BDU

Our University...	Items	University				t (2-tailed) df=76
		AAU (n=38)		BDU (n=40)		
		Mean	Std. Dev.	Mean	Std. Dev.	
	PE1...has embedded awareness raising practices on the value/importance of developing entrepreneurial abilities amongst staff and students of the university.	2.89	.894	2.85	.834	
	PE2...has increased encouragement of staff and students to develop entrepreneurial mindsets, behavior and skills through a range of tailored mechanisms.	2.97	1.585	2.78	.974	
	PE3...has provided opportunities to staff and students to experience entrepreneurship through exposing to environments in which they are more likely to encounter challenges for the development of ...	2.55	.921	2.83	.903	t= .312
	PE4...has increased support for creative and innovative individuals and groups from the pre start-up phase through to the growth phase of business development.	2.58	1.030	2.85	.975	
	PE5...has an increased mentoring service to both student and graduate entrepreneurs by using educators with entrepreneurship experience, dedicated business coaches, or alumni.	2.63	.998	2.70	1.043	
	PE6...has provisions to private financing for the university's potential/ nascent/ budding entrepreneurial staff, students and graduates.	2.24	.883	2.68	.944	
	PE7...has arrangements to business incubation facilities such as services of laboratories, research facilities, IT, coaching, etc...	2.55	1.058	3.08	.859	
<i>Grand mean and test- of significance of pathways for entrepreneurs category</i>		2.6316	.80582	2.8214	.73966	<i>P=.281</i>

Table 6.14 displays the descriptive statistics on the entrepreneurial performances of AAU and BDU in setting up the 'pathways for entrepreneurs' as measured by 7 items using a five-point Likert scale. Accordingly, the rated mean scores for the 6 out of 7 items (85.7%) are in a similar range between M= 2.0 and 3.0 (below the mid-point) in both universities. However, item No.PE7, which asks about 'the arrangements to business incubation facilities such as services of laboratories, research facilities, IT, coaching, etc...' is rated differently by respondents of

AAU,  $M=2.55$ ,  $SD=1.058$ ; BDU,  $M=3.08$ ,  $SD=.859$ ), that indicate a better arrangement in BDU than in AAU with regard to the use of facilities. The rated grand mean score on the 'pathways for entrepreneurs' category displays below the mid-point ( $M=3.0$ ) in both universities, though responses from BDU rated higher ( $M=2.8214$ ) than AAU ( $M=2.6316$ ). However, the t-test result show that there is no a statistically significant difference between the two universities with regard to 'pathways for entrepreneurs' [ $(t_{(76)} = -1.085, p >.05)$ ]. Therefore, the 'pathways for entrepreneurs' category of the entrepreneurial performances component in both universities is rated below the mid-point indicates that the performances of the case study universities in facilitating pathways to those who aspire to be entrepreneurs including staff and students nearly at a medium level.

Pathways for entrepreneurs entails teaching strategies and learning environments which offer targeted support for students and staff that aim at setting up a business. In this regard, higher education institutions can provide such a support directly themselves or refer potential entrepreneurs to specialized start-up support services within the (local) entrepreneurship ecosystem (HEInnovate, 2012). Data obtained from documents and interviews indicate that there are packages of trainings in AAU and BDU meant to graduate class students of most programs on entrepreneurship ranging from 2 days to a week- long duration. However, the trainings in BDU tend to be inconsistent as compared to AAU. The trainings are focused on self-employability and entrepreneurship orientation programs. In such arrangements, successful local entrepreneurs, alumni, and other role models are involved in the presentations.

In addition, to serve as a financial source of campus-based practical exercises, the Colleges of Business and Economics of AAU and BDU provide a loan of Birr, 4000/year for the full class as part of a business creation assignment. It is in this way that the students get a real experience on entrepreneurship with close mentoring from instructors. Institutes of Technologies in AAU and BDU also trying to encourage their students to be able to incubate their own ideas through arrangements of exhibition to inventions and to enable them obtain positive feedback from external and internal stakeholders. Other initiatives mentioned are so-called 'inspirational days' for all graduating students of both universities like a one day event during which businessmen have been presenting their work experience. Specifically in AAU extra-curricular entrepreneurial activities such as celebrations of 'Job-fair and Entrepreneurship Day' and software trainings on

Mobile- based Job search (M. Jobs) mechanisms (College of Business and Economics) are organized. There are few societies of students, clubs or networks to organize entrepreneurial curricular and extracurricular activities, to discuss entrepreneurship issues, create para-entrepreneurial teams, obtain mutual support and increase confidence.

However, responses show that except tailor-made awareness raising trainings, there are no clear policies and regulations from management of case study universities on how to initiate students and teachers to be entrepreneurs and no organized support for and relations with financial institutions. The findings of this study corresponds to that of Mudde, et al. (2015) in that the reasons may be attached partly to universities' leadership lack of awareness about the importance of entrepreneurship; and partly because the university leadership does not think that faculty has the right to be engaged in entrepreneurial activities while also working for the university. In addition, there are no arrangements to support either students or staff who wish to be entrepreneurs in providing access to start-up capital, handing over collateral and proving creditworthiness.

Generally, among the 4 constructs within the entrepreneurial performances of entrepreneurial universities, the multi-dimensional tests show that no significant variations, and both universities performances are nearly equal in all of the 4 constructs. However, it is found to be important to test the entrepreneurial performances as a uni-dimensional and the test of MANOVA is conducted and presented in the Tables 6.15 to 6.16.

Table 6.15

Tests of Equality of Covariance Matrices and Equality of Error Variances on Entrepreneurial Performances

	Variable	Constructs	Box's M	F	df1	df2	Sig.
Levene's Test of		Knowledge Transfer		.347	1	76	.558
Equality of Error	Entrepreneurial performances	Entrepreneurial Education		.063	1	76	.803
Variances		Pathways for Entrepreneurs		.145	1	76	.705
		Internationalization		.062	1	76	.804
Box's Test of			17.342	1.635	10	27442.322	.090
Equality of							
Covariance							

Levene's test and Box's M test are shown in Table 6.15 above. Here, it is observed that the Box's M test of the equality of variance-covariance matrices is not significant,  $F(1, 76) = 1.635, p > .05$ , indicating equality or homogeneity between AAU and BDU on Entrepreneurial performances. As it was argued by Meyers, et al. (2006:105), a non-significant Box's M-Test indicates equal covariance between the dependent variables for the groups composing the dependent variable. Thus, the assumption of equal dependent variables (entrepreneurial performance and its constructs) covariance matrices is supported. The separate Levene's Tests for each constructs are also not statistically significant either, which confirms the equal variances.

Table 6.16

MANOVA Tests on Entrepreneurial Performances

Variable	Effect		$\Lambda$	$F$	$df1$	$df2$	$p$	Partial Eta Squared $\eta^2$
Entrepreneurial Performances	Intercept	Wilks' Lambda	.046	377.304	4.000	73.000	.001	.954
	University	Wilks' Lambda	.863	2.890	4.000	73.000	.028	.137

The top 'Intercept' portion of Table 6.16 evaluates the overall mean differs from zero. Because of its statistical significance, it is concluded that each does differ from zero, indicating entrepreneurial performance varies across universities. Specifically, an actual value for each

multivariate test statistic is displayed in the value column of the table (Wilk's lambda ( $\Lambda$ ) = .863) and using the Wilk's Lambda criterion, the multivariate effect of the university on the 'entrepreneurial performance' variate is significant:  $F(4, 73) = 2.890, p < .05$ . Besides, the Partial Eta Squared ( $\eta^2$ ) = .137) show the proportion of variance with the university as an independent variable. This statistically significant multivariate test tells that there are reliable differences between universities along the entrepreneurial performance. Thus, since the MANOVA result showed significant overall difference in relation to the entrepreneurial performances between the universities, the univariate test results were examined and shown below in Table 6.17.

Table 6.17

Tests of Between Subjects Effects on Entrepreneurial Performances

Tests of Between-Subjects Effects								
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	
Intercept	Knowledge Transfer	68189.334	1	68189.334	1359.123	.000	.947	
	Internationalization	149850.068	1	149850.068	844.753	.000	.917	
	Entrepreneurship Education	60561.654	1	60561.654	1177.219	.000	.939	
	Pathways for Entrepreneurs	28393.391	1	28393.391	970.818	.000	.927	
University	Knowledge Transfer	77.641	1	77.641	1.548	.217	.020	
	Internationalization	17.248	1	17.248	.097	.756	.001	
	Entrepreneurship Education	25.654	1	25.654	.499	.482	.007	
	Pathways for Entrepreneurs	34.416	1	34.416	1.177	.281	.015	

Following a significant difference, 'Tests of between Subjects Effects on Entrepreneurial Performances' were examined to find out which of the constructs significantly contributed to the overall observed difference; and displayed in Table 6.17 above. However, the outcome suggests that even though there seems significant differences from the mere observation of means and standard deviations, (i.e., 'knowledge transfer', [AAU (M=28.579, S.E.= 1.210); BDU (M=30.575, S.E.=1.061)]; 'internationalization', [AAU (M= 44.316, S.E.= 2.064); BDU (M=43.375, S.E.= 2.191)]; 'entrepreneurship education' [AAU (M=28.447, S.E.= 1.117); BDU (M=27.300, S.E.=1.175)]; and 'pathways for entrepreneurs' [AAU (M=18.421, S.E.= .915);

BDU, (M=19.750, S.E.= .819)], reveal that no statistically significant university effects were observed as test results reveal for knowledge transfer,  $F(1, 76) = 1.548, p > .05$ ; Internationalization,  $F(1, 76) = .097, p > .05$ ; Entrepreneurship Education,  $F(1, 76) = .499, p > .05$ ; and Pathways for Entrepreneurs,  $F(1,76) = 1.177, p > .05$ ). Therefore, even though a statistically significant effect was evidenced in multivariate tests as observed in Table 6.16 above, the univariate effect for each sub category of entrepreneurial performance is not significant.

### **6.1.3 The Proximity of Performances to Entrepreneurialism**

This sub-section presents the entrepreneurial performances of AAU and BDU along a spectrum of traditional- entrepreneurial paradigm (Philpott, et al., 2011:162). The main difference between traditional and entrepreneurial universities is the latest's mission of contributing to the economic development of their communities through entrepreneurial activities. The spectrum consists of 9 stages categorized into entrepreneurial activities of 'Soft' (with 6 stages), and 'Hard' (3 stages). Meanwhile, the findings obtained from documents and interview schedules about the entrepreneurial performances of AAU and BDU are classified in such a way that which are close to the spectrum of entrepreneurship or the commercial end (Stage 9) are called 'Hard Activities'; and those which are close to the purely academic end of the spectrum (Stage 1) are called 'Soft Activities' or traditional ones.

Based on these categorizations, the softer initiatives (such as *creating skilled and qualified graduates*, publishing, grantsmanship, consultancy, training and contract research) align better with the traditional academic culture (Klofsten & Jones-Evans, 2000; Louis, et al., 1989) and in certain cases may not even be viewed as entrepreneurial activities by the wider academic community (in Philpott, et al., 2011:162); while the hard forms such as patenting, licensing and spin-off venture formation are generally perceived to be the more substantial outputs of mature entrepreneurial universities (Klofsten & Jones-Evans, 2000, Rasmussen, et al., 2006). The results which display the proximity of performances to entrepreneurial university are therefore, shown in Table 6.18 below.

Table 6.18

## The Proximity of Performances to either Soft or Hard Entrepreneurial Activities

Category	Stages	Forms of Entrepreneurship	AAU	BDU
Soft Entrepreneurial Activities	1	Producing Skilled and Qualified Graduates	√	√
	2	Publications and Documentations of Academic	√	√
	3	Grantsmanship	√	√
	4	Consulting	√	√
	5	Industry Training Courses	√	√
	6	Contract Research	√	√
Hard Entrepreneurial Activities	7	Patenting and Licensing	√	X
	8	Spin-Off Firm Formation	X	X
	9	Creation of a Technology Park	X	X

Key: √ (Observed), x (Not Observed)

Table 6.18 displays the proximity of performances in AAU and BDU to entrepreneurialism. Even though, there could be a bias in categorizations of activities into soft and hard among academicians and entrepreneurial universities, the entrepreneurial performances of universities within a spectrum of the Traditional- Entrepreneurial Paradigm displays the soft and hard categories including stages from the base which starts by ‘*producing skilled and qualified graduates*’ (Stage 1), followed by different stages upwards, and tends to ensure full entrepreneurialism by the upper most stage of activities (Stage 9) referring to the *establishment of science and technology park* (Pahurkar, 2015:49-50).

Consequently, compared to other functions of universities, creating skilled and qualified graduates tend to be the main aspect of roles played by AAU and BDU. This is in line with Shattock (2009:49) in that teaching and learning is the core business of nearly all institutions of higher education; even, in those which consider themselves to be strongly research-led. For instance, through their years of development, both universities have produced a significant number of professionals serving in governmental, non-governmental and private institutions. Statistics show over 222,000 students have graduated from AAU since establishment up to 2013, (AAU, 2013g:1). Similarly, BDU has produced over 44000 graduates through the years of 1994-2013, (excluding the graduates of the two founding institutions before the specified time)

(<http://www.bdu.edu.et>). The creating of highly qualified and skilled graduates imply that the majority of engineers, accountants, architects, economists, university professors, diplomats, etc. serving the country in various sectors and capacities are products of AAU since long ago; and BDU has started to contribute a lot since its establishment. Moreover, it can be argued that the knowledge, technology and skills from both universities have been transferred to the society and industry via their graduates. Nevertheless, although AAU and BDU are, as all other universities, places of education, centers of excellence, and places for acquiring a great deal of universal knowledge on a great many subjects (Newman, cited in Setargaw, 2003); the roles played by these case study universities in advancing knowledge through innovative and creative teaching, research and community services; encouraging robust exercise of academic freedom; developing vibrant graduate programs, and nurturing professional competence are all classified as part of the 'soft' aspects of entrepreneurial activities. Such roles like the development of a scientific culture, humanistic education, and the production of critically committed and ethically strong citizens are hoped to be among the dedicated missions through their institutional life-time yet, to come.

The second form of entrepreneurship along the traditional-entrepreneurial university spectrum is linked to 'publications and documentations of research activities' which is located within the soft entrepreneurial category. In relation, the commitments of AAU and BDU are ensured through their encouragement and support of staff and graduate students to engage in meaningful research, publish their findings in local, regional and international journals and present their research findings in international workshops and conferences. Reports show that AAU and BDU have sponsored and run numerous workshops, conferences, panel discussions, stakeholder meetings and demonstrations every year with pertinent stakeholders so that the knowledge generated in the universities reach end users (AAU, 2011-2015 and BDU, 2011-2015). Informants also reveal that activities related to the professional lecturing, experience sharing, exposure to different conferences and workshops, shorter trainings, courses and supervisions are believed to be contributed considerably to the universities' entrepreneurial intents in particular, and the educational quality improvement efforts in general.

With regard to documentation, the library system of AAU has developed a data base of more than 4000 theses and dissertations produced by graduate students and made them accessible to the wider community and so does BDU for books and other publications. Moreover, AAU has

journals whose number totals over 40, of which some are classified as annual, bi-annual, tri-annual and quarterly and published original works of the staff and of the university and other research in the region and elsewhere. Again, the reputability of most of these journals are said to be checked regularly. Likewise, though the number of journal publications in BDU is at low levels (4 Biannual), respondents were of the view that the number of research outputs from the university and which were published in reputable journals around the world accounts significant. For instance, in between 2011-2014, a total of 270 journal articles were published documented and disseminated to end users by 119 authors in 170 journals (BDU, 2014).

Academic knowledge exchanges in AAU and BDU are not only through publications, but also through web pages, national or international seminars /workshops/ conducted in each academic unit, conferences, exhibitions, open days, trainings, etc. (Annual Reports, 2015). Moreover, issuance of magazines, newsletters, brochures and flyers, holding press conferences, taking care of media relations, conducting communication audits, preparing university profiles for consumptions at home and abroad and FM Radio (specific to BDU) are the means reported to be used for the knowledge transfer practices. Therefore, though activities connected to the publications and documentation in both universities put institutions within the ‘soft’ category of entrepreneurship, it is a step forward along the path towards the hardest entrepreneurial activities. Though it is possible to argue as minimal in volume, the respective efforts indicate that the researchers are getting the platform to showcase for their inventions having market potential and to attract commercial organizations to bid for the research outputs; because as it was described by (Pahurkar, 2015:49), publication is a marketing strategy to expose and advertise the researches having industry applications.

The third form of entrepreneurial activity along the Traditional-Entrepreneurial Paradigm is grantsmanship. It is argued that the real form of academic entrepreneurship is reflected when universities targeted industries, government and international organizations to avail the funding to carryout major researches. Consequently, documents show that AAU has partnerships with various foreign academic and research institutions, and some examples include: the long-standing support from SIDA/SAREC, Norwegian Programmed for Development Research and Education (NUFU); ETH-Zurich (Switzerland), “FAB-LAB Project”; University of Connecticut for Ethiopian Water Resource Institute (EWRI); Abdu Salam International Centre for Theoretical

Physics; UNESCO; and the International Atomic Agency; the Afar Rift Consortium; CASCAPE Project of the Netherlands, and the like. These partnerships are said to be helpful to support the University's in-house PhD training and research programs, consultations in designing curricula, offering joint PhD degrees, provision of faculty services in block teaching, distance teaching, seminars, advising/co-advising, training of trainers (post-doctoral fellowships, short-term research visits, access to electronic databases and joint research projects in areas of common interest (AAU, 2013i: 40-43). The findings of Mudde, et al. (2015) also reveal that the signed partnerships in AAU are close to 70 international and local organizations, majority of which are educational institutions.

In the same way, BDU has partnerships with various foreign academic and research institutions and some example include: General Education Quality Education Program (GEQUIP), Institute of Selected Seed Distribution (ISSD), SIDA, ATA, REALA, Tetra Teach ARD and NAUBU, CASCAPE (Capacity Building and Best Practices Development) TRANSACT Project (BDU, 2011-2015). Most of the local relations with external stakeholders are with government institutions, including government-owned enterprises. However, there are also a number of meaningful local partnerships with key players in the private sector. Therefore, the availability of extensive network of partners with the national and regional governmental and non-governmental organizations in a range of activities including education, research, scholarships and experience sharing tends to generate grants for colleges, faculties and institutes which could potentially facilitate the soft-category of entrepreneurial activities and to approach towards the hardest one in the respective universities.

The fourth stage along the way to proximity of entrepreneurialism in universities is involvement in consulting assignments. In this regard, AAU has clear consultancy service arrangements and different linkages with Multilateral organizations like European Union on the establishment of Model Business School Innovation Center; African Union for a study of Regional Integration Policies among SENECA, COMESA, EAC, EGAD & NEPAD; AU Commission for filing and classification of archives at finance department (AAU, 2011-2015). There are also some examples to linkages of AAU with government offices such as with Ministry of Urban Development and Housing on capacity building and 12 packages of curriculum development; Ethiopian Information Technology on Studying State of Business Enterprises', Radar Technologies Institute

on Shallow Ground Water Mapping Hydrological Quality Survey Geological Survey; Ministry of Transport on Improvement of Public Transport System; Addis Ababa Bureau of Small and Medium Enterprises on Curriculum Design & Center of Excellence Establishment; MeTEC (Homicho Ammunitions Manufacturing Enterprise on Instrument Standardization Curriculum Design & Center of Excellence Establishment. Moreover, AAU has consultancy services with Ministry of Science and Technology for innovation strategy development; Ministry of Works and Social Affairs on professional support for the development of rules and regulations in relation to the handicapped; Addis Ababa City Administration for support of Small and Micro Enterprises; Harari City Administration and Shashemene town on Town Planning; Hidasie Dam Project (Consultancy), Railway Corporation (Capacity Building), Valsec Nutritional Foods PLC (Quality Control Test) and the like (AAU, 2011-2015). Moreover, consultancies for procurement of foreign banknotes processing system; banknote processing machine; air conditioning and ventilation system; machines, tools and books for mechanical engineering department of 11 new Universities; on M.Sc. Education in Railway Engineering Program; design review and supervision of coal phosphate fertilizer complex; global fuel efficiency pilot study-Ethiopia, Adama/Nazareth Wind Farm Project; and Urea Fertilizer consultancy project were some of the areas in which AAU is engaged in resource mobilization.

Of the linkages of AAU with industry and business, the links with all industries on Internship Policy Manual Development; Abdulhafiz Cockroach Eradication PLC on Examination of Cockroach Medicine; Birhan Ena Selam Printing Enterprise on Curriculum Design & Center of Excellence Establishment; Ethiopian Commodity Exchange, Ethiopian Chamber of Commerce on all areas of Collaborative works; Chemical Industry Corporation on Fertilizer Production Complex Project, Total Ethiopia Share Company on fuel sales and lubricants; Ethiopian Business and Branch Associations for professional support from Economics, ACCA for Collaborative work with Accounting Department and etc (AAU, 2011-2015).

Likewise, though BDU has no reported consultancy activities with multilateral and bilateral organizations, it has live consultancy projects with industry and business such as with Sugar Corporation-Tana Beles Suger Cluster Leader; and Dashen Brewery, and Bahir Dar Textile Factory. Moreover, BDU has consultancy assignments with government offices like ANRS Transport Authority, URRAP, mainly on Rural Road Design and Consultancy to 108 KMs

Project in Achefer and Mecha Woredas Ethiopian Road Authority Hamusit-Este Asphalt Project Design, Inspection and Land Acquisition; Integrated Urban Land Data Base Project, Gambella Regional State, Amhara Region Supreme Court, ANRS, Criminal Justice and Human Rights, ANRS Ethics and Anti-Corruption Commission Criminal Justice and Human Rights, Gambella Regional State Supreme Court, ANRS Supreme Court, Environmental and Land Law, Free Legal Support Service, ANRS Tax Collection and the like.

Informants from this study reveal that individual and team researchers have been involved in undertaking consultancies from industry and government organizations on revenue sharing basis along with the university. Of course, it is explained that in both universities, the number of faculties involved in the consultancies are low as compared to the available academic staff. However, through the various consultancy projects that AAU and BDU are engaged in, the academic knowledge, personal experience, expertise and mentoring services are provided; and through the processes it is hoped that universities have shared their institutional expertise in different disciplines; contributed a lot to the improvement of product, process and performances of multilateral organizations, government institutions, and industries. This engagement put universities a step forward along the ladder towards entrepreneurial university, though still remains to be within the 'soft' category.

The fifth form of entrepreneurship along the traditional –Entrepreneurial paradigm refers to the relation of university activities to Executive Education/Industry training courses. Accordingly, it is found that both universities are involved in industry training programs. For instance, AAU is using the common channels like short-term trainings, supervision, and design verification, and its Training and Consultancy Centre introduced 521 broad areas of training and consultancy (AAU, 2013k) and it has 20 target oriented training programs. The center arranges a tailor-made training in the different areas any time with the request of clients. By doing so, besides a significant contribution in the capacity building efforts of the nation, it is able to generate additional revenue to support the various programs and activities of the University. The coordination of trainings and consultancy services to various sectors, industries, business organizations, development agencies and social institutions is led by the Office of V/President for Institutional Development and a subordinate office of Training and Consultancy (AAU, 2013k: 67). Of some examples among the beneficiaries in the past few years are Radio Fana on Customer Service, Radio Advertizing,

Branding and Marketing and Sales; Sugar Corporation on Peachtree Accounting & Customer Service; Ethiopian Cartographic Organization on Advanced Secretarial Services, Ethiopian Postal Service on Advanced Secretarial Services; Ministry of Urban Planning on Clerical Services; Ministry of Federal Affairs on Decision Making, BSC, Conflict Resolution; Ministry of Industry on Advanced Secretarial Services; Addis Ababa University on Advanced Secretarial Services; Ministry of Culture and Tourism on Different Types of Trainings; Ministry of Transport on Rules and Regulations; Ethiopian Wild Life Protection Authority on Geographic Information System.

BDU also engages in different tailor made trainings in the different areas with the request of clients. Of the executive education/industry training courses that BDU involve include: trainings on cotton yarn dyeing, weaving and efficiency improvement to Hawassa Textile Factory; yarn pretreatment and dyeing for production of value added products for the benefit of Mums' small scale enterprise at Bahir Dar; enhancing designing, pattern making, cutting and garment sewing skills of staff of Bahir Dar Textile Share Company and to prisoners in Bahir Dar town; trainings on cotton yarn dyeing for AWRAMBA community; trainings on Singer-made designs and garment pattern making with Bahir Dar Small and Medium Enterprises (SME) development agency; trainings for school teachers on the new science books, mathematics issues; tailor-made trainings to health professionals; set up and use of science laboratories; computer training programs for various groups; trainings on entrepreneurship and leadership, etc. can be cited (BDU, 2011-2015). Furthermore, Bahir Dar University is providing a hands on practical laboratory work related training programs for talented students of some selected schools since 2012. For the purpose, BDU has established a center called 'Bahir Dar STEM Incubation Center' whereby STEM is an acronym for Science, Technology, Engineering, and Mathematics and usually refers to education in one or more of those disciplines. The center is supported by an American Philanthropist (Mr. Mark Gelfand) and serves to maximize the number of science, technology, engineering and mathematics students with a motto "Inside every child is a scientist" (BDU, 2011-2015). These management development programs to upgrade the skills of industry and government employees and the technical courses based on current trends and new technologies to various staff levels in AAU and BDU are entrepreneurial activities of 'soft' category but a step-wise advance to entrepreneurial universities and in turn important to generate substantial revenue through training fees.

The sixth form of entrepreneurship along the way to entrepreneurialism of universities refers to contract research, collaborations and networking with other institutions. It is legally endowed in Ethiopia that every higher institution is expected to have an institutionalized system that enables it to carry out planned research and conduct joint research projects with other national and international institutions, research centers, and industries (HE Proclamation of Ethiopia, 650/2009, 24:4). Consequently, documents show that AAU have had several contracts that typically entail closer working relationships with industry, and both parties negotiate the legal specifications of the contract and the ownership of the resulting intellectual. Besides, AAU has maintained collaborations and networking with different educational and research institutes at home and abroad. For instance, AAU is engaged in 38 live collaborative research projects during the time of this study. Of which, 23 (60%) projects are with short life span, i.e., below 2 years; while 11 (29%) are planned for 3- 4 years duration; and the remaining 4 (11%) to be completed in a relatively longer duration ( $\geq 5$  years-time). Informants in AAU reveal that it has started participating in large projects such as the Millennium Grand Renaissance Dam, and sugar and fertilizer chemical industries though the number of participating academic staff in development is relatively low.

On the other hand, documents of BDU also show that it has started to establish and maintain a professional (educational and research) collaboration with national and international institutions. For instance, currently the university has 15 contract research partnerships, of which 14 (93%) are with universities and organizations in other countries, while the remaining one is with a foundation (BDU, 2011-2015). Informants reveal that most of the relations of BDU with external stakeholders are with government institutions, including government-owned enterprises. However, there are also a number of meaningful partnerships exist with key players in the private sector. From informants, it was possible to discover that there were various research activities conducted within the 12 Academic Units and 10 Research Centers/Institutes of BDU.

Contract researches like these are hoped to help in sharing the resources and expertise, add more value through additional dimension of research, be helpful to get access to more advance technologies and laboratories, and to get new clients for commercializing research. In doing so the path towards the entrepreneurial university is hoped to get shorter. The contract and collaborative research activities listed above in both universities are entrepreneurial activities, of

course, among the ‘soft’ category; but could be a stepping-stone toward and the nearest to the ‘hardest’ one.

The seventh form of entrepreneurship along the traditional-entrepreneurial university spectrum is protecting intellectual property rights (IPR) through patenting and licensing which is found in the category of the hard entrepreneurial activities. Basically, an essential prerequisite for an active role of universities in the patent licensing business was the building of a suitable infrastructure (Franz, 2013:74). In this regard, AAU demonstrated its commitment to intellectual property rights, by establishing ‘Intellectual Property Rights Support Unit (experts) for research and innovation and by facilitating intellectual property rights preparation and registration. Consequently, research outputs which are commercialized are patented by the university to secure patent right in accordance with the relevant laws of the country; and there are a number of research outputs from faculties and students of AAU which are patented locally, (AAU, 2013i:65). Besides, respondents of the interview in both AAU and BDU reveal that the legal frameworks on the basis of which the patent can be licensed and the rules and regulations of the intellectual property administration prepared and drafts are on the Table of decision makers to the approval.

However, the sole patent right secured by AAU from the office of Patent Right of FDRE is the ‘De- Fluoridation of Chemical from the ground water in Great Depression Parts of Ethiopia’ which is rented by Spain National Research Council with a cost of € 7344. On the other hand, BDU has also research outputs which are commercialized and patented by the university to secure patent right in accordance with the relevant laws of the country; the software package of Student Information Management System (SIMS) can be cited. Other than this, the establishment of Business Incubation Center is at a Consultative Work shop stage, and the Establishment of Technology Innovation Support Center (TISC) at a MoU stage i.e., signed between the Ethiopian Intellectual Property Organization (EIPO) and World Intellectual Property Organization (WIPO).

The eighth form of entrepreneurship along the Traditional- Entrepreneurial Paradigm is about new venture start-ups. AAU argues that the general contribution of universities to the general industrialization efforts in general and transformation of the industry in particular demands a transition from the traditional trade-based industry to knowledge-based industry and this also calls to engage in technology business incubation or new venture startups so that to enable universities

compete in today's global market (AAU, 2013b:22). Of the cycle of activities in this regard are: pre-incubation, incubation, and post-incubation. Practices until then, tend to place AAU at about the second phase. Justifications are that in 2012, AAU had a call upon 50 entrepreneurial ideas, to receive them and to select 20 tenants for demonstration. Following the procedure, 10 deserving projects were selected but agreements were made with 5 of them to be engaged in the process of a 3 years-long-hatching. Again, in 2015, 7 projects and 40 research outputs were subjected for demonstrations and waiting for decisions. Reports show that the operating cost demands the commitment of Birr 1.2 Million /year, with a minimum of 30% share from tenants.

Similarly, BDU has engaged in projects that could be entered to spin-off projects in the near future, including: (i) Hand Operated Sock knitting Machine: to contribute significantly in substituting imports of socks and related machines; (ii) Construction and performance evaluation of jacketed Kettle for tomato paste production: aimed at enhancing effective post harvest and value added utilization of tomato thereby creating job opportunity for local manufacturers and small scale food processors; (iii) Handloom Improvement: aimed at improving the existing handlooms for the benefit of micro and small enterprises; (iv) Bench-top Edible Oil Expelling Machine: which is an ideal choice for production and further research of health promoting virgin/cold pressed edible oils from various high value local oilseeds; (v) Amharic VCD on basic Computer Skills: prepared in Amharic language with full motion video along with high quality audio; (vi) GPS-GPRS Based Real-Time Vehicle Tracking and Management System: aimed at providing an accurate controlling and monitoring system of university vehicles throughout their movement within the country;(vii) Smart solar energy based drip irrigation system: that monitors the environmental conditions such as humidity and temperature using sensor networks that helps in decision making as to what and when to provide water to the soil that hosts plants; (viii) Small Low Coast Indirect Passive Solar Drier: to enhance livelihood opportunities of the poor through transfer of technology and utilization of solar dryer in villages around Bahir Dar; (ix) Improving and Commercialization of Ethiopian Indigenous Food and Beverage Products: aimed at improving for commercializing of indigenous 'Tela Difdif' and 'Metata Ayib' as a means of income generation for local community especially the woman; and (x) School nutrition club project: to bring about nutrition behavioral change in the Kollala school community and its environs through the different activities of student nutrition club composed of 3-6 grade students

facilitated by a capable teacher working at the school (BDU, 2011-2015). Though lists in both case study universities are not exhaustive, these are some embryos of hard entrepreneurial activities that can bring universities closer to entrepreneurial university. Informants in both universities are of the view that there are different inventions by faculty and students that could be spin-off and spin-out but there are organizational barriers such as financial issues to realize intentions.

At the top of the spectrum (ninth stage) along the traditional-entrepreneurial paradigm is 'Establishment of Science and Technology Parks'. The establishment of science and technology parks and technology incubators are imperative to foster technology transfer, create knowledge-based small enterprises, commercialization of research outputs and transferring the technology to the industry so that to impact the living standards of the society. However, in spite of appreciation of the advantages, AAU and BDU are at an experience sharing, bench marking, document preparation and consulting stage in this regard (AAU, 2013i:67; BDU, 2011-2015). Generally, the performance proximity of the case study universities can be explained as a metaphor of 'shading from deep hue to non-color', as one goes from producing skilled and knowledgeable graduates to establishments of science and technology parks.

#### **6.1.4. Performances in Resource Mobilization and Diversification**

This sub-section presents the entrepreneurial performances of AAU and BDU in aspects of resource mobilization and diversification. The literature identified different dimensions of resource generating mechanisms. For instance, Hearn (2003:7) has suggested the revenue-seeking efforts of universities to be investigated in eight domains: instructional initiatives; research and analysis initiatives; pricing initiatives; reforms in financial decision making and management; human resource initiatives; franchising, licensing; sponsorship, and partnering arrangements with third parties; initiatives in auxiliary enterprises, facilities, and real estate; and development office initiatives.

Universities can also undertake, according to Philpott, et al. (2011), various entrepreneurial activities and each of these activities could have the potential to contribute (directly or indirectly) to regional and national economic growth, as well as the financial wellbeing of the universities. When it comes to the AAU and BDU, they are almost entirely funded by the National Treasury. However, both universities are also required to finance part of their activities through a scheme

of co-funding, whereby the government requires the universities to raise part of the funding elsewhere. For instance, in 2014/ 2015, Birr 70 million was expected from AAU; and Birr 20,615 Million from BDU (which accounts 8.8% and 3.4% of the annual treasuries respectively). Especially such formats are seen by universities as a desirable incentive mechanism to foster income diversification.

Further, a user-pay principle is started to be applied in Ethiopia since 2008. Cost sharing is to be recovered from students in the form of graduate tax after their graduation. The repayment or the recovery of cost is effected on the basis of the legally binding agreement that a beneficiary entered into with the institutions at the beginning of each academic year. With this contract, the beneficiary has given his/her agreement that the amount owed will be paid from future earnings in the form of tax deductions according to the provisions laid down by the law (Teshome, 2007; in Wanna & Desalegn, 2012:25). Moreover, the powers and duties for implementation of cost sharing in HEIs are shared by the MOE, the Ethiopian Revenue and Customs Authority, HEIs and employees (FDRE, 2008). Therefore, AAU and BDU play their roles in signing agreements with students and contributes holding original credentials of graduates until they provide clearances of cost-sharing, unless otherwise graduates are among those privileged to compensate with service (teachers and health professionals).

Still, AAU and BDU are supposed to be engaged in income generation activity areas specified by the Ministry of Finance and Economic Development (MoFED, 2014). The directive is pertaining to the sources of internal revenue which include the instructional activities; tailor-made trainings; contractual agreements with government and non-government organizations; community service such as hospitals, pharmaceutical services, and laboratories; consultancy services; testing services; leasing of different extra services; recreational services and so on. Consequently, from possible different strategies that can be used to serve for resource generation in universities elsewhere, this study presents and analyses following the dimensions suggested by Hearn (2003:7). Results shown in the following tables describe the dimensions of entrepreneurial activities in AAU and BDU.

Table 6.19

## Instructional Initiatives in AAU and BDU

No.	Dimensions and Sub-Dimensions of Instructional Initiatives	AAU	BDU
1.1	Traditional campus-based instructional services e.g., extension, summer and distance courses (Brick)	√	√
1.2	On line Education Services existing solely in cyberspace (Click), such as: online applications	X	X
	• online campus-based portals	√	√
	• online course delivery	X	X
	• online supplemental content provision	√	√
	• online library services	√	√
	• online textbooks	√	√
	• online advising and tutoring	√	√
1.3	Embedded campus-based instructional services also offering online learning opportunities (Brick and Click)	X	X

Key: √ (Observed), x (Not Observed)

Table 6.19 above reveals the involvement of AAU and BDU in ‘instructional initiatives’ to generate resources. Informants from both universities reveal that institutions are engaged in traditional campus-based continuing education services (Brick) like evening programs, summer courses, distance modalities and short courses, in areas demanded by the labor force. Corresponding to the findings of Munyua, et al. (2011:16), this study also found that the extension programs are offered to self or industry- sponsored students outside the regular working hours and targets workers who wish to upgrade their qualifications or high school graduates who met the minimum university entrance requirements but could not meet the target set for government sponsorship. The summer program targets either government–sponsored or industry-sponsored employees who wish to upgrade their qualifications and could not enroll in the extension program due to the distances from the universities or the self-sponsored ones. Moreover, the distance education programs are offered throughout the year to self or industry-sponsored students who by one reason or the other cannot attend scheduled contact classes. Specifically BDU is aggressively engaged in extending its services in distance education modalities; while it is in progress in AAU. It was reported by informants that both universities are able to earn sum amount of money from the traditional (brick) undergraduate continuing and distance education programs; and from the post graduate regular programs through fees for tuition, registration, certification and associated activities.

In addition, both universities are introducing on-line education services existing solely in cyberspace (Click), campus-based portals, supplemental content provision, library services, textbooks, and advising and tutoring services. Besides, both universities are described as working aggressively to enable systems for online applications, course delivery, and embedded campus-based instructional services to offer online learning opportunities through Brick and Click formats. However, except the roles these click-related services play in minimizing costs, increasing efficiency, and their potential for generating resources; no records found about the amount saved or generated resources as a result of the respective services. The findings in this study also tends to be in congruent with Franz's (2013:76) study elsewhere, in that continuing education and vocational training are initially established as one of the universities' central tasks. Recently all HEIs active in this field have undertaken steps to systematize their offers and to improve their visibility by means of the web. In addition, some internet platforms have emerged informing about and facilitating the search for continuing education offered by HEIs. Despite the overall increasing number of continuing education courses offered and the improved visibility, the options in this field of action, still tends to appear far from being exhausted.

Table 6.20

## Pricing Initiatives in AAU and BDU

Dimensions and Sub-Dimensions of Differentiated pricing	AAU	BDU
Differentiation of pricing structures) by the:		
Offering unit (the engineering as opposed to business school)	√	√
Costs of facilities associated with a particular course offering (with or without lab service, workshop)	√	√
Timing of the offer (regular, evening/weekends, summer, tailor-made, etc.)	√	√
Program level (graduate/professional or undergraduate)	√	√
Location of the course (in campus, off campus (distance)	√	√
Fields of Study	√	√
Number of credits being taken by the student	√	√
Student status (e.g., from under-served groups)	X	X
Key: √ (Yes Observed), x (Not Observed)		

Table 6.20 above indicates about the involvement of AAU and BDU in ‘pricing initiatives’ dimension of resource mobilization. Differentiating the pricing of instruction in higher education can take place, according to Hearn (2003), in areas of the tuition by the offering unit, by the instructional or facilities’ costs associated with a particular course offering, by the timing of the offering (evening, weekends, day, summer, etc.), by the course level (graduate/professional or undergraduate), by the location of the course (online, off campus, etc.), by the student’s major field and degree level, by the number of credits being taken by the student (“tuition banding,” often used to encourage full-time as opposed to part-time enrollment), and by student residency status (in-state, out-of-state, or overseas).

Similarly, price variation initiatives are found to be common in AAU and BDU through the specified areas except item related to ‘the student status’, like the consideration of the under-served groups. For instance, price variations are found to be common in AAU and BDU such as to Bachelor’s Degree, ranging from Birr 65 to 80/cr.hr; MA/M.Sc. regular, summer and extension, Birr 500- 600/cr.hr; and for Bachelor’s Degree Distance, Birr 60-100/cr.hr (the Case of BDU only). In addition, case study universities charge evening students additional fees per credit hour for laboratory-based courses. Further, there are more than 20 types of chargeable services that demanded at the registrar offices of both universities such as application, registration, certification, authentication etc which charge from Birr 30 to Birr 100/person. Moreover, while collecting service charges on different categories of job placement exams in AAU and BDU, a

minimum of 5 people is compulsory, and the rates of cost/head varies based on the number and the nature of the exams, which resulted in decreases with the corresponding increase of in bunch of candidates. However, though differentiating prices are common to the extent to prove that the case study universities are using the package as a dimension of resource mobilization, it is found that the frequency of price revisions are not so frequent to meet the market demands; and respondents' opinion reveal that the objectives of price differentiating is not to maximize profits but to cover costs of the programs and to cope up with inflations. The reason is, according to the arguments of respondents, the non-financial returns of continuing education programs is much appreciated in the universities and then, it is regarded as a notable form of community services.

Table 6.21

Development Office Initiatives in AAU and BDU

No.	Dimensions and Sub-Dimensions of development Initiatives	AAU	BDU
1	Resources from government other than the core-support department (MoE) such as from defense, health, transportation, agriculture and forestry, economic development, and technological development at the national regional and city governments; and supranational public bodies	√	√
2	Resources from Multilateral, Bi-lateral Sources	√	√
3	Resources <i>from</i> foundations ( <i>local</i> , national and international)	√	√

Key: √ (Yes), x (No)

Table 6.21 displays the involvement of AAU and BDU in the dimension of 'development office initiatives' for the purposes of resource generation. Informants and documents in both universities reveal that there are income received from government agencies, other than the core-support department such as from defense, health, transportation, agriculture and forestry, economic development, and technological development at the national regional and city governments. There are also routes to generate resources from multi-lateral, and bilateral and foundations of local, national and international standing (See. 6.2.5). However, these resources are described to be occurred inconsistently. This finding is fitting with the survey results of Munyua, et al. (2011:17) in that all the universities in Ethiopia receive donations and grants which were not frequent in nature. Most of these funds were either sourced by the government through the ministries or by the conscious efforts of universities in developing and submitting of proposals for funding to the donor agencies.

Table 6.22

## Research and Technology Transfer Initiatives in AAU and BDU

No.	Dimensions and Sub-dimensions of Research and Technology Transfer Initiatives	AAU	BDU
1	Pursuit of resource generation initiatives from: business incubators	√	√
	• technology transfer offices e.g., for community services	√	√
	• research and technology centers and parks	X	X
	• small business development centers of various types	√	√
2	Contract researches and collaborations with industry and the government	√	√
3	E-commerce, i.e., using the web and Internet for selling institutional research and analysis services	X	X
4	Fee- based information services, for off-campus parties	X	X
5	Royalty income from patented inventions and licensing of intellectual property	√	√
6	Resources from consultancy of business firms, large or small, with whom the university becomes involved.	√	√

Key: √ (Yes Observed), x (Not Observed)

Table 6.22 above illustrates the involvement of AAU and BDU in ‘research and technology transfer’ initiatives to mobilize resources. Meanwhile, informants and documents show that except the institutional absence of spin-offs firm formation out of research and supports from technology centers and parks, there are pursuit of resource generation initiatives of technology transfer offices for community services; and small business development centers of various types. Further, except e-commerce, i.e., using the web and internet for selling institutional research and analysis services, and fee- based information services, for off-campus parties, there are resources generated from initiatives related to contract researches and collaborations with industry and the government; royalty income from patented inventions and licensing of intellectual property; from consultancy of business firms, large or small, with whom the university becomes involved and from training activities (See 6.2.5).

AAU and BDU are also consisting departments of science and engineering that indicate their potential to generate resources from research and knowledge transfer initiatives, and even until now, it can be argued, that research and technology transfer initiatives are contributing in generating resources in AAU and BDU, even though whether or not their contributions to reduce the universities’ dependency or to mitigate against the cutbacks from government, industry and foundations is unknown.

Table 6.23

## Franchising, Licensing, Sponsorship, and Partnering Arrangements with Third Parties

No.	Dimensions and Sub-dimensions of Franchising, Licensing, Sponsorship, and Partnering Arrangements with Third Parties	AAU	BDU
1	Collaborations with externally based partners such as outsourcing contracts for-profit corporations with the aim of revenue guarantees from: <ul style="list-style-type: none"> <li>• residence halls</li> <li>• legal services</li> <li>• facilities operations</li> <li>• technology services</li> <li>• services like campus security, sanitation</li> <li>• child care</li> <li>• teaching hospitals</li> <li>• architectural and construction services</li> </ul>	√ X √ √ √ X X √	√ X √ √ √ X X √
2	Use of university “brand” itself and its distinctive logos and emblems e.g., by soft drink companies	X	X
3	Generation of resources from: <ul style="list-style-type: none"> <li>• remedial classes</li> <li>• tours and camps</li> <li>• scholarly conferences</li> <li>• concert series</li> <li>• museum showings</li> <li>• athletic competitions</li> <li>• sponsorships of on-campus events</li> </ul>	X X X X √ √ √	X X X X √ √ √

Key: √ (Yes Observed), x (Not Observed)

Table 6.23 points out the involvement of AAU and BDU in ‘franchising, licensing, sponsorship, and partnering accounts to third parties’ for the purposes of resource mobilization. This refers to privatizing separate entities or contracting works for-profit corporations with the aim of enhancing revenues and returns which includes the use of university assets (including the brand) by others, selling of assets, leasing, or renting to third parties, or using as collateral to secure financing for new entrepreneurial initiatives (Hearn, 2003). Accordingly, it is found from interview schedules and different documents that both universities under the study have collaborations with externally based partners such as outsourcing contracts for-profit corporations with the aim of revenue guarantees from residence halls, facilities operations, and services related to security sanitation, technology, architectural and construction, but no outsourcing of services like legal, child care and teaching hospitals. Reports show that some outsourced aspects of university activities are

terminated perhaps due to either cost-benefit analysis or unknown reasons (e.g., Security in BDU). Further, use of university “brand” itself and its distinctive logos and emblems to companies so that to generate resources is not practiced in AAU and BDU. Moreover, there are generation of resources from museum showings, athletic competitions, and sponsorships of on-campus events there are no recorded resources from remedial classes, tours and camps, scholarly conferences and concert series.

Table 6.24

Initiatives in Auxiliary Enterprises, Facilities, and Real Estate

No.	Dimensions and Sub-Dimensions of Initiatives in Auxiliary Enterprises, Facilities, and Real Estate	AAU	BDU
1	Use of assets to be sold, leased, or rented to third parties, or used as collateral to secure financing for new entrepreneurial initiatives <ul style="list-style-type: none"> <li>• auxiliary units such as athletics facilities, soccer camps, and hotels</li> <li>• renting or selling of assets like buildings and land to donors or corporations</li> <li>• property leasing such as forklifts, workshops, printing services</li> <li>• leasing of facilities like dining, photocopying, shopping, etc...</li> <li>• renting of buildings for residences or offices either to staff members or stakeholders</li> </ul>	√ X √ √ √	√ X √ √ √
2	Generation of Income from: <ul style="list-style-type: none"> <li>• livestock (mainly poultry or dairy) or crop farming (mainly grains and legumes) or both</li> <li>• sale of suites and other amenities</li> <li>• stand-alone operations both to provide services and to generate surpluses, e.g., garages, fuel depots, printings, production of furniture etc...</li> </ul>	√ √ √	√ √ √
3	Debit cards arrangements for purchasing on-campus products and services	X	X

Key: √ (Yes Observed), x (Not Observed)

Table 6.24 above exhibits the involvement of AAU and BDU within ‘initiatives of auxiliary enterprises, facilities, and real estate’. Details reveal that the types of activities engaged by universities are similar mainly in generating of resources from auxiliary units such as athletics facilities, soccer camps, and hotels, property leasing such as forklifts, workshops; leasing of facilities like dining, photocopying, shopping, etc. Besides, except arrangements of debit cards for purchasing on-campus products and services, universities are doing a lot to generate income from either livestock (mainly poultry or dairy) or crop farming (mainly grains and legumes) or both; sale of suites and other amenities, and stand-alone activities like printing, press, furniture, and the like. Nevertheless, no evidences in AAU and BDU about resource generation from renting or selling of assets like buildings and land to donors or corporations except the strong intentions

by the former institution to work on firms dealing with law, accounting, building, bank, hospitals, film making, garages, fuel depots and so on.

Table 6.25

Human Resource Initiatives

No	Dimensions and Sub-Dimensions of Human Resource Initiatives	AAU	BDU
1	Packages for faculty to pursue their academic expertise and institutional affiliation in their consulting, during traditional working hours.	√	√
2	Capture consulting revenue for the institution rather than the faculty	√	√
3	Compensation and promotion processes to provide more explicit incentives for faculty's revenue-generating activities	X	X
4	Incentives for senior faculty to retire, and then rehire them	√	√

Key: √ (Yes Observed), x (Not Observed)

Table 6.25 demonstrates the involvement of AAU and BDU in ‘human resource initiatives’ to generate resources. Accordingly, except absence of packages for the compensation and promotion processes to provide more explicit incentives for faculty’s revenue-generating activities, both AAU and BDU tend to have packages for faculty to pursue their academic expertise and institutional affiliation in their consulting, during traditional working hours; capture consulting revenue for the institution rather than the faculty (through royalty payments); and incentives for senior faculty to retire, and then to be rehired. However, no arrangements are observed on the processes of compensation and promotion to provide more explicit incentives for faculty’s revenue-generating activities.

Informants in case study universities also reveal that, in some cases, the involvement of academic staff in individual consultancy is assumed to be very high than through the brands of the universities. Some professors don’t like to attach themselves with the universities especially for consultancies due to agreement complications, rate of taxations, and pace of securing payments. Nevertheless, informants explained that there are also professors participated in consultancy projects through the university, and by doing so, not only generated resources to their respective universities but also complement their basic salaries with income from consultancies. This finding also matches with the findings of Mudde, et al. (2015) in that professors in universities prefer individual consultancy to institutionalized consultancy, unless the client insists (which rarely happens), ostensibly due to inefficient financial management in the university. Universities are

also criticized for being ill-equipped to meet the deadlines usually required for the submission of bidding documents.

Table 5.26

Other Financing Initiatives

No.	Dimensions and Sub-Dimensions to the Adoption of More Adventurous Financial Initiatives	AAU	BDU
1	Well- thought-out investment with intelligent cash-flow management	√	√
2	Use of unitized investment pools of funds/seed funds drawn from multiple sources like institutional, state, or foundation sources	√	√
3	Venture-capital investment in for-profit start-up enterprises	√	√
4	Participation in foreign educational market options	X	X
5	Pursuit of new revenues with revolving funds	√	√
6	Tapping alumni as sources of revenue	X	X
7	Look for resources from professional associations based on business specialties	√	√

Key: √ (Yes Observed), x (Not Observed)

Table 5.26 illustrates the involvement of AAU and BDU in the adoption of more adventurous financial initiatives other than the dimensions discussed in the aforementioned tables. Consequently, data obtained from informants and documents disclose that except failure in taking part in foreign educational market options, and in tapping the alumni as sources of revenue, both universities tend to take part in a well- thought-out investment with intelligent cash-flow management; use unitized investment pools of funds/seed funds drawn from multiple sources like institutional, state, or foundation sources; invest in venture-capital for-profit start-up enterprises, pursue of new revenues with revolving funds, and look for resources from professional associations based on business specialties. For instance, both universities are, at present, attracting the government and other development agents to market their professional services. Business Enterprises of AAU (AAUBE) became operational since September 2013 in AAU and Poly-Peda business enterprise of BDU since 2014. The former has collected the seed money (Birr 10 million, excluding fixed assets), while to the latter; Birr 100 million is made available for this purpose. In AAU, 12 enterprises are allowed and 9 of them have already become operational. Informants also reveal that BDU also has venture-capital investment in for-profit start-up enterprises with Abay Bank and Insurance Companies.

Table 6.27

## Volume of Generated Income from Different Dimensions

Dimension	AAU			BDU	
	Birr Millions	in %	%	Birr in Millions	%
Instructional Initiatives	66.398		11	152.493	73
Consultancy and Training	12.278		2	4.921	2
Franchising, Licensing	20.467		3	1.111	1
Auxiliary enterprises	37.900		6	14.235	7
Development Initiatives (Grantsmanship)	490.633		78	36.412	17

Table 6.27 illustrates the volume of financial resources generated from different entrepreneurial activities in AAU and BDU within the time period ranging from 2011/12-2014/15. Data is obtained by converting the funds in different currencies to Ethiopian Birr. Besides, the financial data include the costs of projects other than the net income. Moreover, as it was encountered by Fisseha (2015:164) from other two Ethiopian Universities, the same appears to be true in this study that there is a substantial lack of transparency on getting the financial data in AAU and BDU. Focal persons declined to reveal the amounts of internally generated revenue, perhaps, on the side of the university, there is a fear of seeing its budget allocations decrease by the amount generated. Disclosing data on generated income may be lead to “punishment for good deeds”. Thus, information on such revenues is very sensitive, and is often undisclosed. When disclosed, the figures are often unreliable. Therefore, this data was consolidated from reports and memos of different sections other than the finance departments. Nonetheless, triangulations are made to increase the reliability in some aspects like the estimations of income from instructional services by multiplying the number of students in the extension, summer and distance programs with the normal credit hour load per academic year and the respective costs per credit hour. The results depict that the third stream income from ‘Development Initiatives (Grantsmanship)’ account the major portion in AAU (78% ), while, it is the second stage in BDU which accounts only for 17%. As resources from development initiatives refers to income from sources of multilateral, and bi-lateral organizations; and local or international foundations including the other government sectors, the role played by AAU tends to be much encouraging while BDU has to do a lot in this

regard. Of course, the potential reasons for this variation can be from the longer age and larger size of AAU as compared to BDU. On the other hand, the major source of third stream income in BDU is related to 'Instructional Initiatives' (73%); while this dimension is the second stage of income source to AAU that accounts for 11%. In both universities, income from 'Auxiliary enterprises' put at the third stage which accounts for 6% in AAU and 7% in BDU; consultancy and training related incomes are covering minimal portion i.e., 2% in both AAU and BDU, and Franchising and Licensing related activities only for 3% and 1% to AAU and BDU respectively. Therefore, though AAU and BDU offer both academic and non-academic services and products to their stakeholders to acquire resources, earned resources from development initiatives (grantsmanship) and instructional services formed a significant part of the universities' income other than the dimensions related to research and technology transfer initiatives or similar others.

Practically, engaging in different business & investment activities are explained by informants of AAU and BDU to be important to enable universities to achieve their long term aims for self reliance, helpful to achieve profit making motives of institutions; to enable the vast academic community provide adequate professional services and enjoy the benefits of their works; to motivate & retain their staff for sustainable growth; to serve as knowledge management centers, a venue for research & development, as well as technology dissemination & transfer, whereby both academicians & practitioners work together for further innovation & sustainable development.

#### **6.1.4. Organizational Business Environment**

This sub-section presents findings on university organizational environment. The variable consists of 5 constructs namely, control system, organizational structure, HRM system, entrepreneurial leadership behavior and entrepreneurial culture. To this end, the data collected from the office holders of AAU (n=38), and BDU (n=40) through the questionnaire are presented and analyzed descriptively. In addition, data obtained from documents and interview schedules is used to triangulate and test the internal entrepreneurial ecosystem of AAU and BDU. Then after, interpretations are given based on the mean values of each item, each construct, and finally statistical test is administered on the dimension of 'organizational environment' so that to capture

the institutional proximity to entrepreneurial university and to find out if at all there are institutional differences in this regard.

Table 6.28

Control Systems in AAU and BDU

Items	University				t (2-tailed) df=76
	AAU (n=38)		BDU (n=40)		
	Mean	Std. Dev.	Mean	Std. Dev.	
CS1. Tightness of budgetary controls*	2.39	1.198	2.53	1.062	
CS2. Claims for expenses in doing R&D go through strict control process*	2.71	1.160	2.53	.905	
CS3. Difficulty to reverse budgets for R&D after once accepted*	2.95	1.114	2.78	1.187	
CS4. Degree of discretion to academicians in how they do their jobs.	2.84	.973	3.15	.893	
CS5. Degree of trust to academicians by the management when it comes to using organizational resources.	2.66	.994	3.15	1.001	t= -1.688
CS6. The clarity of the lines of command to allocate authority to each faculty/school or department.	2.87	1.143	3.23	1.074	
CS7. Variety of options for individuals in the university to get financial support for innovative projects.	2.39	1.028	2.68	.971	
CS8. Openness of the university environment to encourage people to talk openly with others	2.92	1.075	3.40	1.105	
<i>Grand mean and test- of significance on control systems category</i>	2.7171	.59608	2.9281	.50628	P=.095

\*Reverse Coded

The results of the descriptive analysis for ‘control systems’ are shown in Table 6.28. The scale of control systems consisted of 7 items reflecting the perception of officers of AAU and BDU on control of the budget and expense claims for research and development, the level of discretion in undertaking work, efficiency versus effectiveness in resource allocation and whether people talk openly about improving operations. Informants were asked to rate each item, measured by a five-point Likert scale ranging from ‘1’ (*‘to a very less extent’*) to ‘5’ (*‘a very great extent’*). From the mean scores, it is observed that respondents in both universities rated at a similar level to 4 items out of 8 (CS1, CS2, CS3, and CS7), below the mid-point (3.0), which imply the medium level of organizational environment conveniences to both universities.

The mean scores for the remaining 4 items (CS4, CS5, CS6, CS8) are different in AAU and BDU, whereby the former rated  $M < 3.0$ , while the latter  $M > 3.0$ , which imply that control

conditions seem to be conducive to entrepreneurial activities in BDU than in AAU in relation to the specified items. The rated grand mean score on the 'control systems' category in both universities display below the mid-point (3.0), though responses from BDU rated higher (M=2.9281) than AAU (M=2.7171). However, the t-test result show that there is no a statistically significant difference between the two universities with regard to 'control systems' [(t<sub>(76)</sub>= -1.688, *p* >.05)]. Therefore, the 'control systems' category of the organizational environment' component in both universities is concentrated around the mean score, which imply the availability of somehow moderate levels of flexible, convenient and accommodative internal work environments and responsibilities.

Further, informants in AAU and BDU were asked about the institutional willingness to relax management control systems when it is assumed to have a counterproductive character for entrepreneurial engagement. Responses in both universities show that tight and comprehensive planning systems, tight budget controls and careful monitoring of outputs are reported to be the routine practices in universities to be followed to comply with national rules and regulations of procurement and hiring; to respond for R&D claims; and to get financial support for innovative projects. As a result, though putting prudence and more effective control measures is important the availability of strict central rules and procedures to be followed were reported to be as a challenge for entrepreneurship. This is in congruence with the statements of Armesh, et al. (2014: 120) that control is the appropriate tool of the managers in different levels of organization and its necessity can be felt in various levels. May be the most important thing that makes the control highly crucial, is the fact, that it helps for better roles in organizational predictions and remove some percentages of errors in operational plans. However, as it was argued by Yusof, et al. (2012:97), prudence and more effective control measures need to be put in place to promote innovation and entrepreneurship.

As a control system, both monitoring and evaluation mechanisms are set in the BSC documents of both universities whereby the performance of individuals, teams, units, offices; directorates as well as top management of the universities are controlled. Respondents were of the view that the introduction and use of Balanced Scorecard system (BSC) in AAU and BDU is one of the integrated management control tool used to translate strategy into actions and to undertake work

efficiency versus cost effectiveness in the day-to-day activities. With regard to the BSC, it is reported that universities view their plans and measure their performances by using four perspectives as the lenses and scales i.e., internal processes, customer/stakeholder, budget/finance, and learning and growth/organizational capacity. Thus, the BSC is described as a means to enable the universities to map out their strategic directions, intended outcomes, performance measures, and communication strategies and ultimately eliminate their shortcomings (AAU, 2013d; BDU, 2012b).

Documents in AAU and BDU suggest a smooth and strong relation among top managers, directors, deans and responsible individuals; fast information exchange among the responsible agents; and a well-established coordination among all levels. These includes institutionalization of monitoring and evaluation of progresses through weekly reviews (about individual level performance to supervisors); biweekly (supervisors/team leaders/department heads to their immediate supervisor/directors/deans/schools/institutes heads); and monthly, quarterly, and annually (by key actors) as a means to track resource disbursement and utilization at all levels of AAU and BDU (AAU, 2013d; BDU, 2012b). To this end, the Balanced Scorecard system is supported with an automated system to collect data on daily, weekly, monthly, quarterly, biannually, and annual basis (AAU, 2013d; BDU2012b). Meanwhile, respondents during interview schedules explained that though the procedures in the BSC are to allow discretion to academicians in how to do jobs and to encourage people in the universities to talk openly with each other, it is also described as leaving little room for flexibility and agility to such extent that an entrepreneurial control system looks for.

**Table 6.29**

## Organizational Structure in AAU and BDU

Items	University				t (2-tailed) df=76
	AAU (n=38)		BDU (n=40)		
	Mean	Std. Dev.	Mean	Std. Dev.	
OS1. The nature of the organizational structure of the university to facilitate open communication flow.	2.55	1.155	3.28	.816	
OS2. The complexity of the bureaucratic structure to take away your ability to be entrepreneurial*	2.53	1.268	2.88	1.090	
OS3. Convenience of the way the university system is organized to independently manage entrepreneurial projects.	2.34	.966	2.95	.959	t= -2.851
OS4. Flexibility of the organizational structure of the university	2.08	.997	2.85	1.001	
OS5. Rigidity of the chain of command to the extent of limiting your ability to experiment with new ideas*	2.89	1.134	2.93	.997	
OS6. Practices in delegating decision-making responsibilities.	2.89	.953	3.10	1.081	
OS7. The organizational structure is clearly defined	2.84	1.103	3.08	1.023	
<i>Grand mean and test- of significance on organizational structure category</i>	2.5902	.61974	3.0071	.66924	P=.006

\*Reverse Coded

Table 6.29 shows the results of the descriptive statistics of ‘organizational structure’. A total of 7 items were measured by a five-point Likert scale on informants’ views about their universities’ organizational structures and whether structures are flexible thereby facilitating open communication flow, encourages entrepreneurship and experimentation of new ideas. The rated mean scores of 4 items (OS2, OS3, OS4, OS5) in both universities show below the mid value ( $M < 3.0$ ), which imply the less conveniences of structural environment to entrepreneurship. However, the range of perceptions seem to vary between the respondents of AAU who rated  $M < 3.0$ ; and BDU  $M > 3.0$  for the remaining 3 items (OS1, OS6, and OS7). The mean and test-of significance on the ‘organizational structure’ category displays that responses from BDU rated higher ( $M = 3.0071$ ) than AAU ( $M = 2.5902$ ) and this shows that there is a statistically significant difference between the two universities with regard to ‘organizational structure’ [ $t_{(76)} = -2.851, p < .05$ ]. Therefore, even though the rated score of ‘organizational structure’ category in both universities is concentrated around the mean, implies that it could not be a hindrance or an impediment on the ability of these universities to be entrepreneurial or

innovative; the significant differences in results reveal that the organizational structure in BDU is relatively more supportive to entrepreneurial activities as compared to AAU.

In an attempt to identify organizational systems, structures and processes which are in AAU and BDU for the overseeing, designing, and implementing entrepreneurial activities, it is found from documents and interviews that both institutions are taking measures to improve their organizational structures and system in to a new and less hierarchical ones so that to create an empowered, and accountable academic units which can design and revise their academic programs, administer their budget, and generate income. For instance, the coordinating and facilitating of research and technology transfer programs at both Universities' are organized by offices at a level of Vice Presidents for Research and Technology Transfer, consisting different subordinate offices like Directors for Research, University-Industry Linkage, Community Services, Publications and Disseminations, and Offices of the Research Institutes. Furthermore, there are units across colleges to facilitate small university businesses, research facilities, research groups or quasi firms, technology transfer offices and incubators in their respective campuses.

These structures are engaged in creating an enabling, harmonious, transparent and efficient environment for the development of competitive research projects, execution of research and transfer of innovations and technologies (AAU, 2013c; BDU, 2012c). In addition, for the success of entrepreneurial activities, relevant offices such as resource generation, mobilization and management; and the office of projects and endowment funds are situated under the Vice President for Institutional Development (AAU, 2013c; BDU, 2012c). Such structural arrangement measures are hoped to help case study universities to engage in entrepreneurial arena because the increased entrepreneurial activities engaged by the universities across the globe has mainly been attributed to the establishment of special support structures in the form of Technology Transfer Offices (TTO) and incubator centers (Meyers & Pruthi, 2011; Boh, et al., 2012; Ismail, et al., 2012; Rashid, et al., 2015:550).

AAU and BDU have set-up structures known as a 'Centre of Innovation and Entrepreneurship'. In the case of AAU, the center is opened in two campuses i.e., Institute of Technology and College Of Business and Economics, while it is at the President's office in BDU. The centers are

particularly expected to work on entrepreneurship development and established with support of EDC-Ethiopia. The setup of the respective centers took place in 2014 and the centers' role ranges from entrepreneurship awareness among students up to coordinating of all the enterprise development activities of the university (Mudde, et al., 2015). Therefore, it can be argued that AAU and BDU have tried to put in place an organizational structure that can govern not only their research activities but also the entrepreneurial agendas. This is in line with the argument by Burykhina (2009:39), which states that organizational structure that is adequate to new goals and management like entrepreneurialism methods involves introducing of a flexible organization structure, management and self-government techniques; transfer to strategy management to enable flexibility in response to external challenges; and to introduce timely changes serving to achieve competitive advantages (Link & Scott, 2005; D'Este & Patel, 2007).

Additionally, entrepreneurial organizations demand the authority for decision making to be given to units and individuals in order to design and develop proper actions in the right time. This calls for obvious decentralization so that creativity, talent and operational or intellectual power of experts are realized in organizations. The centralized administration processes in AAU and BDU have become decentralized to College level. Besides decisions on academic matters, units have started to make decisions on issues pertaining to finance, procurement and human resource development (AAU, 2015a:30; BDU, 2011). In addition, there is a strategic objective at AAU, specifically linked to organizational structure and its institutional intentions to decentralization, i.e.:

...underscores the process of ensuring participatory decision making that enables the University community to actively engage in and contribute towards the prevalence of the rule of law. The University commits itself to adhere to the basic democratic principles whereby decentralized and participatory decision making is ensured. It also facilitates flow of information in all directions to bridge the prevalent information gap for transparency and decision making. Eliminate redundant and overstretched structure to right-size human power (AAU, 2013d:36).

Therefore, even though the organized structures in both universities are somehow in line with the requirements of entrepreneurial universities and it may not be a hindrance or an impediment on the ability of these universities to be entrepreneurial, this study doesn't prove whether or not

AAU and BDU are pursuing a flat structure, eliminating intermediate units to minimize barriers between the center and base units, becoming accommodative of organizational flexibility, and facilitating open communication flow. Basically, it is not only the organizational structures like technology-transfer offices, centers of entrepreneurship or other units dealing with business that are the sole requirements for strong support mechanisms in entrepreneurialism and knowledge-commercialization activities; but also tangible infrastructures such as business incubators, start-up formations, joint ventures, spin-offs and spin-ins.

Table 6.30

Human Resource Management Systems in AAU and BDU

Items	University				t (2-tailed) df=76
	AAU (n=38)		BDU (n=40)		
	Mean	Std. Dev.	Mean	Std. Dev.	
HR1. Incentive packages for innovative activities	2.24	1.025	2.50	1.013	
HR2. Reward systems for academicians who take calculated risks.	2.03	.915	2.53	1.154	
HR3. Definition of jobs with considerable discretion in how tasks are performed.	2.37	.913	2.68	.971	
HR4. Range of career paths which can be pursued by academicians.	2.55	.950	2.95	1.108	
HR5. Continuous Professional Development (CPD) packages to support the creative potential of academicians.	2.39	.946	2.95	1.131	t= -2.294
HR6. Inclusion of employee innovativeness in the annual performance appraisals and evaluations.	2.18	.896	2.83	1.035	
HR7. The balance between incentives for individual and team initiatives.	2.11	.981	2.50	1.086	
<i>Grand mean and test- of significance on HRM systems</i>	2.2669	.77122	2.7036	.90083	<i>P=.025</i>

Table 6.30 shows the human resource management systems scale which was measured by 7 items that relate to issues such as incentives for innovation, reward for taking calculated risks, job definition, pursuance of multiple career paths, development of creative potential, CPD packages, and about the balance between individual incentives and team incentives. From the rated mean scores, the human resource management system in both universities seemed to be characterized in a range of 'to some extent' to 'a medium extent' in all the 7 items (i.e. in between  $M > 2.00$  to  $< 3.00$ ), which imply the presence of moderately convenient organizational entrepreneurial HRM environment. Again, the rated grand mean score on the 'HRM system' category displays that

responses from BDU rated higher (M=2.7036) than AAU (M=2.2669). In spite of the concentration of the rated scores of 'HRM systems' category in both universities to lie below the mean (M=3.0), there is a statistically significant difference between the two universities with regard to 'HRM systems' [(t<sub>(76)</sub> = -2.294, *p* < .05)]. Therefore, even though the supportive role of HRM systems to the entrepreneurial activities in both universities is in between to 'some extent' to 'a medium extent', results still show that HRM conditions in BDU tend to be relatively better supportive.

Documents and responses through interviews reveal that there are some reward systems of both monetary (funds, scholarships, use of resources) and non-monetary (promotion, recognition systems) in AAU and BDU for those who may contribute not only in effective teaching, research and publications, but also public and professional service rendered in various capacities including the entrepreneurial activities (AAU, 2013f, Art, 34; BDU, 2013c). For instance, besides rewarding such contributions through incorporating in the promotion criteria set for faculty members towards their career paths, research grants, packages for formal and informal trainings, visiting arrangements to selected universities, institutionalization of continuous professional development programs were among the recorded events organized to honor staff. Examples are events that AAU has made an allotment of a total amount of over Birr 3 million as a research incentive to be given to the academic staff to acknowledge publications submitted during the academic calendar of 2012/2013; and the event in BDU that was organized on April 5, 2014 to honor scores of staff who excelled in research and publications accompanied by monetary rewards, visiting packages, and certificates of recognitions. The objective of the event was to stimulate academic staff to engage in research and help them contribute their part in realizing the vision of the University, 'a vision of becoming one of the premier research universities in Africa by 2025' (AAU, 2013f: :7 Art 23; BDU, 2013c).

The roles played by innovative and creative human resource and organizational entrepreneurs are considered to be not only as the basis of the real wealth of an organization but also a key to stay safe in the competition and finally to become a leading and entrepreneurial organization. In this regard, the macro level provisions in relation to organizational capacity, people, and incentives, (FDRE, 2009: Art, 31), indicate the given rooms to exercise academic freedom based on the institution's mission; conduct research and render consultancy services; take sabbatical and

research leaves to conduct research and studies on the basis of usefulness of the project to the institution and the country; being entitled to further education and training for professional development; being promoted and assume new academic rank; enjoy transparent, fair, and equitable administration and system of remuneration and the like. These all are among the aspects of entrepreneurial-oriented HRM system which are hoped to bring a culture that rewards the scholarship, teaching and practice of entrepreneurship in all disciplines in a systematic manner other than in isolated units within the university.

Further, as argued by HEinnovate (2012), entrepreneurial higher education institutions continuously aim at developing their organizational capacity. To this end, incentives and rewards are to be put in place for entrepreneurship champions, staff, students and stakeholders who are promoting the entrepreneurial agenda, and removing barriers and constraints within the organization. The aim is to empower individuals throughout the organization to own their own initiatives, engage in innovation and build personal trust-based stakeholder relationships across external and internal boundaries in search of synergy. Accordingly, the information obtained through the interviews conducted in AAU and BDU indicate that the monetary rewards available for academic staff is related to the right of collecting the share from research and consultancy service projects according to the terms of agreements; and after the clearances of royalty payments to the university. Nevertheless, informants were of the view that entrepreneurial attitudes and experience do not seem to play an explicit role as criteria for recruitment (of faculty and support staff) at AAU and BDU. Again, the occurrences of rewarding measures in alternating programs are condemned, by respondents, to be related to lack of explicitly designed packages of incentives and rewards that are put in place for entrepreneurship champions, staff, students and stakeholders who are promoting the entrepreneurial agendas on individual or team basis.

Table 6.31

## Entrepreneurial Culture in AAU and BDU

Items	University				t (2-tailed) df=76
	AAU (n=38)		BDU (n=40)		
	Mean	Std. Dev.	Mean	Std. Dev.	
CU1. Giving free time to employees with a good idea to develop that idea.	2.16	1.001	2.78	1.143	
CU2. Opportunity for employees to say a lot on how things are done.	2.32	1.016	2.73	1.037	
CU3. Availability of a culture that rewards tested ideas.	2.08	.850	2.78	1.074	
CU4. Celebration of innovative achievements.	2.18	1.036	2.95	1.131	t= -3.492
CU5. Prevalence of a culture that discourages failure*	2.61	1.054	3.05	.986	
CU6. Sense of urgency regarding the importance of	2.13	.963	2.90	1.128	
CU7. Speed of go/no go decisions from the management to whatever new ideas	2.05	1.038	2.88	1.114	
CU8. Supports to small experimental projects even though some may eventually fail.	2.11	1.060	2.90	1.081	
<i>Grand mean and test- of significance on entrepreneurial category</i>	2.2039	.78812	2.8688	.88703	<i>P=.001</i>

\*Reverse coded

The descriptive statistics regarding the universities' culture in promoting innovation and entrepreneurship is reported in Table 6.31. A total of 8 items was measured by a five-point Likert scale examining the extent of entrepreneurial elements of culture related to idea generation, rewarding tested ideas, celebration of innovative achievements, encouraging failure, a sense of urgency on the importance of innovation, risk-taking value, decision making on new ideas and support for experimental projects which may also probably fail. The results of the rated mean scores depict that except item No. CU5 whereby, a slight mean difference is observed between AAU (M=2.61, SD=1.054) and (BDU, M=3.05, SD=.986), the mean rates of all the rest 7 items indicate that the entrepreneurial culture in AAU and BDU lies in between a level of 'to some extent' 'to a medium extent' (Mean in between 2.0 and 3.0). The rated grand mean score on the 'entrepreneurial culture' category displays that responses from BDU rated higher (M=2.8688) than AAU (M=2.2039). Despite the concentration of the rated scores of 'entrepreneurial culture' category in both universities to lie below the mean (M=3.0), there is a statistically significant difference between the two universities with regard to 'entrepreneurial culture' [(t<sub>(76)</sub> = -3.492, p <.05)]. Therefore, even though the supportive role of entrepreneurial culture to the entrepreneurial activities in both universities is in between to 'some extent' to 'a medium extent'; results still

show that cultural conditions in BDU tend to be relatively better supportive to entrepreneurial activities as compared to AAU. These results tend to suggest that the culture of entrepreneurship had yet to be inculcated and embodied in both universities.

An organizational culture demonstrates a set of values, norms and beliefs in which the organization is mutual with employees. In this regard, Gjerding, et al. (2006:14) have to say that if entrepreneurship is a basic value guiding what people are doing, a university is expected to experience entrepreneurial activities even in cases where supporting infrastructures, funding systems and the like may not be ideal for promoting entrepreneurship. Consequently, one of the core values/principles that AAU is guided by include the upholding and inculcating of *Entrepreneurial Spirit* among its community (AAU, 2013d:9). This indicates AAU's institutional commitment to hold entrepreneurship as its in-house values by which members of the university need to follow and to stir their patterns of behavior towards a spirit of competition or, conversely, solidarity, of bonding or keeping one's distance to the institution.

By the same token, though difficult to claim on whether or not consciously done for the development of entrepreneurial culture, AAU and BDU are found to be involved in collaborations, services, and civic engagements that have implications for it, and even universities have been using such activities as sources for the generation of revenues. Consequently, reports display that AAU and BDU are, participating in regional clusters, supporting local cultural and artistic activities, providing opportunities for regional start-ups (established companies), engaging with Small and Medium Enterprises (SMEs), sharing facilities to other institutions from outside the respective universities; and taking an active role in the strategic direction of local developments. Such type of collaborations, services, and civic engagements are hoped to increase the entrepreneurial culture, and even sources for the revenues of the universities (AAU, 2011-1015; BDU, 2011-1015).

The other indicators about the prevalence of entrepreneurial culture include the spread of entrepreneurial idea among university community to form a consistent institutional belief; availability of entrepreneurial structures; expansion of entrepreneurial activities such as continuing education, R and D, technology transfer, consultancy, etc. (Samuel and Hines, 2006:18). In this context, informants of the interview schedules described that the community

services of any sort by AAU and BDU that are focused on education, health, agricultural extension, urbanization, technology and similar others are kinds of civic engagements that can be categorized as activities of social entrepreneurship.

Henceforth, the entrepreneurial ethos reported about AAU and BDU seems to be crucial for the entrepreneurial engagements of the institutions as it is argued from previous studies that the traditional culture of an organization generally supports conservative decision making and is based on hierarchal approach (Pinkat, 1985). Although the efforts of AAU and BDU and their achievements towards embracing entrepreneurship into their working practices are a positive change to be welcomed, fostered and absorbed by both organizations; informants of both case study universities were reluctant to confirm about the fulfillment of the requirements of entrepreneurial culture in the case study universities such as prevalence of high level win-win situation, satisfaction of all employees for a feeling of being valued; reinforcement of ethics and trust among the employees; and establishments of teamwork as an organizational method and culture. Moreover, respondents are still of the view that entrepreneurial ideas are not spread among the university communities to the extent that could propel entrepreneurial activities across the dispersed units of both universities.

Table 6.32

Entrepreneurial Leadership Behavior

Items	University				t (2-tailed) df=76
	AAU (n=38)		BDU (n=40)		
	Mean	Std. Dev.	Mean	Std. Dev.	
EL1. Encouragement to the bending of rules when they get in the way of achieving strategic initiatives.	2.18	.955	2.88	1.042	t= -2.642
EL2. Willingness to move ahead with a promising new approach when others might hold back.	2.50	1.033	2.88	.791	
EL3. Overall encouragements in the university to outwit/outsmart bureaucracy.	2.24	1.149	2.85	1.001	
EL4. Flexibility to utilize different approaches to overcome obstacles whenever the initial one does not work.	2.42	.948	2.98	1.000	
EL5. Fight against the encroachment of bureaucracy in the university.	2.39	.974	2.90	.982	
EL6. Willingness to listen to suggestions from others about how to do things differently.	2.53	1.033	2.88	.939	
<i>Grand mean and test- of significance on entrepreneurial leadership behavior category</i>	2.3772	.88843	2.8917	.83166	<i>P=.010</i>

In Table 6.32 above, the results of the descriptive analysis of the entrepreneurial leadership behavior variable are presented. A total of 6 items which were adapted from the ‘General Entrepreneurial Leadership scale’ of Thornberry’s (2006) cited in Yusof, et al. (2012:101) was administered to measure the perception of entrepreneurial leadership behavior among leadership members at various levels of both AAU and BDU. The rated mean scores for all items in both universities are found to be distributed in between M=2.0 and 3.0; even though ratings from BDU are approaching the mid-point than that of ratings from AAU. However, results seem to indicate that the prevalence of entrepreneurial leadership behavior lies amid the scale of ‘to some extent’ and ‘a medium extent’ levels, which imply the availability of a moderate steering core in both universities. In addition, the rated grand mean score on the ‘leadership behavior’ category displays that responses from BDU rated higher (M=2.8917) than AAU (M=2.3772). Regardless of the concentration of the rated scores of ‘leadership behavior’ category in both universities to lie below the mean (M=3.0), there is a statistically significant difference between the two universities with regard to ‘leadership behavior’ [(t<sub>(76)</sub> = -2.642, *p* <.05)]. Therefore, even if the supportive role of leadership behavior to the entrepreneurial activities in both universities is in between to ‘some extent’ to ‘a medium extent’, significant differences in results still show that leadership conditions in BDU tend to be relatively better supportive to entrepreneurial activities as compared to AAU. Furthermore, the results suggest that though the creation of entrepreneurial university and the process of university transformation calls for entrepreneurial leadership with the inherent focus on opportunities, building sense of creative destruction, with dynamic stake and staged investment, and with an exit strategy (Thornberry, 2006; in Yusof, et al., 2012:92), according to the results of the questionnaire, these seem to be found not at the expected levels.

Nonetheless, such elements are found to be as focuses of the case study universities, in one or the other way, and specifically, expressed through the preambles and the main bodies of different documents in AAU and BDU such as the Handbooks, the Strategic plans, and the BSCs. In particular, the message stated by the President of Addis Ababa University, Admasu Tsegaye (AAU, 2013g: ii) marks the institutional position:

The global climate in which universities operate is changing drastically. Universities’ roles in advancing national economic development, innovative enterprises and international competitiveness are increasing.

Ethiopian higher education institutions are also expected to be at the forefront of development issues and contribute to poverty alleviation in the country. In order to be able to enhance the contribution of the university to the national development endeavor and to realign itself to the current developmental priorities of Ethiopia, AAU has initiated and is leading an institutional transformation starting from 2009 onwards.

Hence, it can be argued that the structural changes which have taken place in AAU and BDU were the outcomes of the entrepreneurial leadership, which in turn were expected to increase the velocity and effectiveness of the university and also the opportunities to be enjoyed from the university. Besides, the roles played in planning, contracting, and building infrastructure for economic development within the university along teaching and research, championing of innovative ideas and providing of resources necessary to realize changes were entrepreneurial responses if viewed from the perspective of efforts to meet the ever changing societal needs and global standards. Furthermore, activities like lobbying governments and businesses for funds, and serving as ambassadors to the public at large to promote the image of the universities as the useful and meaningful institutions are to be recognized as outcomes of entrepreneurial leadership behavior. To HEinnovate (2012), leadership and governance are two critical and challenging factors in developing entrepreneurial higher education institutions. Positive and responsive leadership is what maintains a dynamic and successful organization, particularly in times of uncertainty, unpredictability and complexity. Leadership and governance can stimulate innovation of all kinds in an organization that is held together by a shared vision and culture, not overloaded with managerial systems, constantly striving for its autonomy via the entrepreneurial management of its various interdependencies with stakeholders. In relation, some informants from AAU and BDU express that it is the leadership who used to work for decentralized budgeting systems that are practiced to bring about efficient and effective administration; distributed resources to units to enable them generate robust academic products and services; and encouraged entrepreneurship through establishing university unit as quasi-independent enteritis. Additionally, the supports of senior executives for entrepreneurial behaviors has been reflected through development of procedures and operational manuals for the core missions (education, research and community services); and by their attempts to the proper use of monitoring and evaluation systems, by which all could demonstrate the leadership entrepreneurial behavior.

It was also explained by some informants that even though it is managers' disposition to put in place appropriate rewards, to create a supportive organizational structure, risk taking and tolerance for failure, the leadership in both case study universities tend to be subjected to keep-up with rules and regulations which may operate against entrepreneurial orientation at work.

Generally, among the 5 constructs within the organizational environment variable of universities the multi-dimensional tests show that there are significant variations in 4 constructs mainly, 'organizational structure', 'HRM', 'entrepreneurial culture', and 'leadership behavior'. However, it is found to be important to test the organizational environment as a uni-dimensional variable and the test of MANOVA is conducted and presented in Tables 6.33 to 6.34.

Table 6.33

Tests of Equality of Covariance Matrices and Equality of Error Variances on Organizational Entrepreneurial Environment Variable

		Box's M	F	df1	df2	Sig.
Levene's Test of Equality of Error Variances <sup>a</sup>	Control Systems		.683	1	76	.411
	Organizational Structure		.121	1	76	.729
	HRM		.255	1	76	.615
	Entrepreneurial Culture		.369	1	76	.546
	Leadership Behavior		.797	1	76	.375
Box's Test of Equality of Covariance		15.036	.931	15	23118.772	.528

Levene's test and Box's M test are shown in Table 6.33 above. Here, it is observed that the Box's M test of the equality of variance-covariance matrices is not significant,  $F(15, 23118.772) = .528$ ,  $p > .05$ , indicating equality or homogeneity between AAU and BDU on organizational/internal entrepreneurial environment. As it was argued by Meyers, et al. (2006:105), a non-significant Box's M-Test indicates equal covariance between the dependent variables for the groups composing the dependent variable. The separate Levene's Tests for each constructs are not statistically significant either ( $p > .05$ ), which confirms the equal variances.

Table 6.34

## MANOVA Tests on Organizational Entrepreneurial Environment

Variable	Effect		$\Lambda$	$F$	$df 1$	$df 2$	$p$	Partial Eta ( $\eta^2$ )
Organizational Environment	Intercept	Wilks' Lambda	.033	421.134	5.000	72.000	.000	.967
	University	Wilks' Lambda	.843	2.691	5.000	72.000	.028	.157

The top 'Intercept' portion of Table 6.34 evaluates the overall mean differs from zero. Because of its statistical significance, it is concluded that each does differ from zero, indicating 'Organizational entrepreneurial environment' varies across universities. Besides, using the Wilk's Lambda criterion, the multivariate effect of the university on the organizational environment variate is significant ( $p < 0.05$ ).

The actual value for each multivariate test statistic is displayed in the value column of the table (Wilk's lambda ( $\Lambda$ ) = .843) and is translated by SPSS into an  $F$  value that is evaluated with specific hypothesis (between groups) and error (within groups) degrees of freedom. In the present study, with the use of Wilk's lambda criterion ( $\Lambda$ ), statistically significant difference was observed among the universities with regard to the factors of the 'organizational entrepreneurial environment,  $F(5, 72) = 421.134, p < .05$ . The Partial Eta Squared ( $\eta^2$ ) = .967) show the proportion of variance with the university as an independent variable. This statistically significant multivariate test tells that there are reliable differences between universities along the organizational environment. Thus, since the MANOVA result showed significant overall difference in relation to the organizational environment between the universities, the univariate test results were examined and shown below in Table 6.35.

Table 6.35

## Tests of Between Subjects Effects on Organizational Environment

Tests of Between-Subjects Effects							
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	<i>F</i>	Sig.	Partial Eta Squared
Intercept	Control Systems	39745.895	1	39745.895	2039.430	.000	.964
	Organizational Structure	29916.643	1	29916.643	1464.762	.000	.951
	HRM	23590.832	1	23590.832	681.941	.000	.900
	Culture	32092.745	1	32092.745	710.111	.000	.903
	Leadership	19475.326	1	19475.326	731.841	.000	.906
University	Control Systems	55.536	1	55.536	2.850	.095	.036
	Organizational Structure	165.976	1	165.976	8.126	.006	.097
	HRM	182.062	1	182.062	5.263	.025	.065
	Culture	551.207	1	551.207	12.196	.001	.138
	Leadership	185.685	1	185.685	6.978	.010	.084

Each dependent variable is evaluated separately in the ‘Tests of between Subjects Effects’ in Table 6.35. The *F* values obtained from these analyses are identical to running separate univariate ANOVAs for each dependent measure (Meyers, et al, 2006:396). This output summarizes standard ANOVA output (i.e., sum of squares, degrees of freedom, mean squares, *F* values, significance level, and partial  $\eta^2$ ) for each dependent variable. Thus, it can be concluded that the statistically significant multivariate effect that was found in this study was “driven” in part by the 4 sub-variables i.e., ‘organizational structure’, ‘HRM’, ‘entrepreneurial culture’ and ‘entrepreneurial leadership behavior’. The detail results show ‘organizational structure’ [AAU (M=18.132, S.E= .704); BDU (M=21.050, S.E=.741),  $F(1,76)=8.126, p > .050$ ]; ‘HRM’ [AAU (M=15.868, S.E.= .876); BDU (M=18.925, S.E.= .997),  $F(1,76)=5.263, p > .05$ ], ‘entrepreneurial culture’ [AAU (M=14.263, S.E.= .865); BDU (M=17.350, S.E.=.789),  $F(1,76)= 12.196, p > .05$ ]; and ‘leadership behavior’, [AAU (M=17.632, S.E.= 1.023; BDU (M=22.950, S.E.1.122),  $F(1,76)= 6.978, p > .05$ ]. This means except the ‘control system’ construct all other organizational factors are found to be sources of differences among universities. Consequently, fostering entrepreneurship in universities, mainly in AAU calls more for internal organizational factors related to organizational structure, HRM, entrepreneurial culture and entrepreneurial leadership behavior.

### 6.1.6 External Business Environment

This sub-section presents findings on university external entrepreneurial environment. The variable consists of 3 constructs namely, dynamism, hostility, and heterogeneity. To this end, the data collected from the office holders of AAU (n=38), and BDU (n=40) through the questionnaire are presented and analyzed descriptively. In addition, data obtained from documents and interview schedules is used to triangulate and test the external entrepreneurial ecosystem of AAU and BDU. Subsequently, interpretations are given based on the mean values of each item, each construct, and finally statistical test is administered on the dimension of ‘external environment’ so that to capture the institutional proximity to entrepreneurial university and to find out if at all there are institutional differences in this regard.

Table 6.36

Environmental Dynamism in AAU and BDU

Items	University				t (2-tailed) df=76
	AAU (n=38)		BDU (n=40)		
	Mean	Std.	Mean	Std. Dev.	
ED1. The need in your university to change its marketing practices too frequently to keep up with the market and competitors.	2.92	1.100	2.85	1.001	t=.065
ED2. The rate at which products/services are getting obsolete in the university	2.97	1.052	2.80	.966	
ED3. The unpredictability of the actions of competitors.	2.61	.974	2.78	.920	
ED4. The unpredictability of demand and consumer tastes	2.84	.855	2.83	.931	
ED5. The organizational capacity of the university to cope up with the changes in production/service technologies.	2.74	.950	2.78	.974	
<i>Grand Mean and test- of significance on Environmental Dynamism Category</i>	2.8158	.68715	2.8050	.76526	<i>P=.948</i>

Table 6.36 shows the entrepreneurial ‘dynamism’ which was measured by five items on the five-point Likert scale, and seeks to describe the perceived speed of changes in the industry in which the case study universities operate. The items are adapted from the works of Miller and Friesen (1982; cited in Beliaeva, 2014: 54). All the presented 5 items of environmental dynamism are rated by informants of AAU and BDU in between the M=2.0 and 3.0 which indicates the level of dynamism to rest among the scale of ‘to some extent’ and ‘to a medium extent’. Besides, the rated grand mean score on the ‘dynamism’ category displays that responses from AAU rated higher (M=2.8158) than BDU (M=2.8050). However, besides the concentration of the rated scores of

'dynamism' category in both universities to lie below the mean ( $M=3.0$ ), there is no a statistically significant difference between the two universities with regard to 'dynamism' [ $(t_{(76)} = -.065, p >.05)$ ]. From the rated responses, it can be understood that environmental dynamism is sensed not as harsh as expected from the timely pressures of globalization, internationalization and knowledge societies. As a result, it is logical to argue that fierce competitions in the case study universities tends to be minimal; rather reveals the availability of a relatively 'comfort zone' to both which also implies the prevalence of nearly a moderate level of capacities to cope up with any changes related to mission accomplishments. During the interview schedule, the external environment was reported to be judged by some of the respondents of both case study universities negatively which centered on the unpredictability of competitors, rapidly changing global and local research environments, and swiftly out-of-dated technologies, besides unpredictable demand for higher education.

Some informants from the study positively state about the turbulence or predictability of the environment and about the degree of environmental munificent in providing resources. This was a bit different from what was reported through the questionnaire. For instance, the phenomenon of dynamic environment that is outlined as favorable in the documents of AAU include: geographical advantages, being located in the country's capital city; while to be at the regional city to BDU. Moreover, the emphasis given for higher education institutions in the Growth and Transformation Plans; strong support to the universities at all levels from City Administrations, Regional Governments and the Federal one; unprecedented desires by many governmental and nongovernmental institutions to get the support of the universities; extraordinary access to electronic information from anywhere in the world; and the readiness of the society to exploit the community services of the universities (AAU, 2013d; BDU, 2012b:7). Specifically, different informants in AAU expressed their views in favor of their institution's munificent nature in relation to the existing degree of good public reputation; possibilities to use its good image to attract research grants; ease of using historical and cultural resources to do links, research collaborations and entrepreneurial arrangements with government agencies, and different donors. Accordingly, the universities intention to restore their standing through solving specific problems of the environment and contributing to the economic development of the country is anticipated to be challenged from the positions that the majority of respondents seem to recognize, comfortable than offensive.

Table 6.37

## Environmental Hostility in AAU and BDU

Items	University				t (2-tailed) df=76
	AAU (n=38)		BDU (n=40)		
	Mean	Std. Dev.	Mean	Std. Dev.	
EH1. The degree of threat from the environment to institutional survival.	2.53	1.133	2.63	1.102	
EH2. Toughness of competitions (e.g., either with private HEIs or the public ones such as rankings, tuition fee other than to the regular under-graduates, etc.)	2.55	1.032	2.73	1.062	
EH3. Severity of competition in product quality or novelty	2.39	.974	2.70	1.043	t=.111
EH4. Degree of dwindling of markets for graduates	2.89	.863	2.90	1.105	
EH5. Scarcity of labor and material resources	2.97	1.127	2.63	1.079	
EH6. Challenging nature of the government intervention	3.29	1.113	2.95	1.300	
<i>Grand mean and test- of significance on environmental hostility category</i>	2.7719	.63839	2.7542	.76794	<i>P=.912</i>

Table 6.37 shows the perceived ‘environmental hostility’ which is measured by 6 items on the five-point Likert scale. The scale measures whether or not the business environment is the threat to the survival of the universities. From the mean scores of the rated all 6 items, it can be understood that respondents in both AAU and BDU are of the opinion that the whole level of environmental hostility to the universities’ survival is in between M=2.0 and 3.0 which entails the meaning ranging from ‘to some extent’ to ‘a medium extent’. Moreover, the rated grand mean score on the ‘hostility’ category displays that responses from AAU rated higher (M=2.7719) than BDU (M=2.7542). Nevertheless, besides the concentration of the rated scores of ‘hostility’ category in both universities to lie below the mean (M=3.0), there is no a statistically significant difference between the two universities with regard to environmental ‘hostility’ [(t<sub>(76)</sub> = -.111, p >.05)]. Therefore, the findings from the questionnaire suggest that the environmental threat, competitions in rankings, tuition fees; dwindling of markets for products; scarcity of labor and material resources; and the government intervention are not as much hostile to be a threat; or to be as a pushing factor; to work aggressively for entrepreneurialism in both universities.

Moreover, the favorable or unfavorable nature of the external environment to entrepreneurial engagement was assessed from documents and through interview schedules. Hence, the extracted data from the institutional appraisal which was made by AAU for its own change efforts (AAU, 2013d:16) reveals that competition from local and international universities and consultants;

increasing tendency of brain drain; competition from external employers for administrative employees; high competition for resources; existence of donor driven graduate programs and research; high rate of inflation; low attention to basic research; unpredictable national and international trends are cited as potential threats. The use of second jobs by some academic staff such as moonlighting to compensate own low salaries was reported to be the phenomena which resulted with a little time spend on their main job. This is in congruent with the findings of Fisseha (2015), and it is believed to be another hostile character which comes from the pulling factor of the external environment for extra duties.

Equally, the hostile nature of the external environment operating against BDU and attached to the defined threats within its documents include: high staff turnover; shortage of competent academic staff in the market; insufficient number of qualified staff; unreliable market conditions that make the procurement of lab equipment and other utilities increasingly difficult; unbearable maintenance costs in the construction aspect; and inflation which resulted with the increasing cost of students' meal and accommodation (BDU, 2012b:8). These imply that the mission accomplishments in AAU and BDU are challenged by hostile environments, which could also pressure to take up measures toward entrepreneurialism. Essentially, public universities as governmental organizations are expected to be faced with external challenges such as decrease of financial bases, ever changing technologies and diversity in public demands. Hence, with a proper sense of contexts, universities can introduce some of the market oriented insights such as privatization, outsourcing, private governmental partners and organizational entrepreneurship, besides accomplishing their missions. However, in spite of appreciating the potential threats of hostile environments and their possible roles to stimulate the pursuit of entrepreneurship, some respondents were of the view that there are no signs of strong entrepreneurial coping mechanisms and improvement of internal capabilities toward entrepreneurialism.

Table 6.38

## Environmental Heterogeneity

Items	University				t (2-tailed) df=76
	AAU (n=38)		BDU (n=40)		
	Mean	Std.	Mean	Std.	
HE1. Diversification of the business and industrial environment in which the university operates	2.92	.969	2.95	1.011	
HE2 Horizons of the competition that the university shall win	3.05	.868	2.90	.928	t=-.131
HE3. Diversified nature of the competition	2.79	.811	2.88	.966	
HE4. Market dynamism and uncertainty	2.84	.886	2.98	1.074	
<i>Grand mean and test- of significance of environmental heterogeneity category</i>	2.9013	.72489	2.9250	.86454	P=.896

Table 6.38 shows the perceived ‘environmental heterogeneity’ as measured by 4 items on the five-point Likert scale and describes the level of diversification of the universities and offering of different products and services with regard to different customer’s buying habits, nature of competition, market dynamism and uncertainty. Results show that except for item HE2, depicting mean differences between AAU and BDU, (i.e. AAU, M=3.05, SD=.869; and BDU, M=2.90, SD=.928), the mean scores for the remaining 3 items (out of 4) are rated below the mid-point 3.0 in both universities. Consequently, the rated grand mean score on the ‘heterogeneity’ category displays that responses from BDU rated higher (M=2.9250) than AAU (M=2.7542). Nonetheless, beyond the concentration of the rated scores of ‘heterogeneity’ category in both universities to lie below the mean (M=3.0), there is no a statistically significant difference between the two universities with regard to environmental ‘heterogeneity’ [(t<sub>(76)</sub> = -.065, p >.05)]. Therefore, the findings still reveal that ‘environmental heterogeneity’ is perceived at the level of amid ‘to some extent’ and ‘a medium extent’; which implies the prevalence of moderate environmental complexity.

Some respondents of AAU and BDU have shown that homogeneity tends to outweigh for all public HEIs in the country other than heterogeneity of the external environment, as seen from the use of similar rules and regulations. However, other respondents expressed their view that the growing diversification of the business and industrial environment in which the university operates and the horizons of challenges that the universities shall win are becoming immense in number. Cited examples are increasing societal (government, private) demand for applied research and trained manpower, complex global development trends; ICT-assisted markets, high

demand for community services. Thus, data from the rated mean scores, documents and interview responses reveal that the external environment of AAU and BDU are not as unsympathetic as to be a threat; or as comfortable as to be relaxed from taking up of entrepreneurial measures rather complex which calls for entrepreneurial coping mechanisms.

Generally, among the 3 constructs within the external environment variable of entrepreneurial universities the multi-dimensional tests show that there are no significant variations in all of the 3 constructs. However, it is found to be important to test the external environment as a uni-dimensional variable and the test of MANOVA is conducted and presented (See in Tables 6.39-6.40).

Table 6.39

Tests of Equality of Covariance Matrices and Equality of Error Variances on External Environment Variable

	Variable	Constructs	Box's M	<i>F</i>	df1	df2	Sig.
Levene's Test of Equality of Error Variances	External Environment	Dynamism		.101	1	76	.752
		Hostility		1.331	1	76	.252
		Heterogeneity		.618	1	76	.434
Box's Test of Equality of Covariance			20.728	3.306	6	41540.099	.003

Levene's test and Box's M test are shown in Table 6.39 above. Here, it is observed that the Box's M test of the equality of variance-covariance matrices is significant,  $F(6, 41540.099) = 3.306$ ,  $p < .05$ ), indicating the absence of equality or homogeneity between AAU and BDU in external entrepreneurial environment. As it was argued by Meyers, et al. (2006:105), a non-significant Box's M-Test indicates equal covariance between the dependent variables for the groups composing the dependent variable. Therefore, under this study, the assumption of equal dependent variables (external entrepreneurial environment and its constructs) covariance matrices is not supported. Box's M was significant at  $p < .05$ , showing violation of variance-covariance homogeneity assumption. However, according to Tabachnick and Fidell (2007), Box's M is a notoriously sensitive test such that it is at  $p < .001$  rejection that robustness will not be guaranteed. Thus, it was decided to continue running the MANOVA analysis. Besides, the separate Levene's

Tests for each constructs are not statistically significant either, which confirms the equal variances.

Table 6.40

MANOVA Tests on External Entrepreneurial Environment

Variable	Effect		$\Lambda$	$F$	$df 1$	$df 2$	$p$	Partial Eta ( $\eta^2$ )
External	Intercept	Pillai's Trace	.962	620.737	3.000	74.000	.000	.962
Environ ment	University	Pillai's Trace	.001	.019	3.000	74.000	.996	.001

The top ‘Intercept’ portion of Table 6.40 evaluates the overall mean differences from zero. Because of its statistical significance, it is concluded that each does differ from zero, indicating external entrepreneurial environment varies across universities. In this study, as the Box’s t-test is statistically significant, the Pillai’s trace is considered, and the multivariate effect of the university on the ‘external entrepreneurial environment’ variate is found to be insignificant ( $p > 0.05$ ). With the use of Pillai's Trace criterion, no statistically significant difference was observed among the universities with regard to the factors of the ‘external entrepreneurial environment’,  $F(3, 74) = 620.737, p > .05$ . The Partial Eta Squared ( $\eta^2$ ) = .962 show the proportion of variance with the university independent variable. Thus, as the MANOVA result showed no significant overall difference regarding external entrepreneurial environment between the universities, the univariate test results were not examined.

Nevertheless, of the external environments which are believed to play crucial roles in promoting and facilitating development of academic entrepreneurship, respondents of both case study universities tend to have the view that there are some aspects that are missing: such as systems of incubator organizations and institutions promoting entrepreneurship (i.e. technological parks); observable supports from the government on entrepreneurship; efficiency of financing institutions toward entrepreneurial projects; the attitude of bureaucracy and society towards entrepreneurs; and well-developed entrepreneurial-friendly climate.

**6.2 The Interactions among the Variables of EO, OE, EE, and EP**

Under this sub-section two sets of regression tests are conducted. The first set of tests examined the predicting effects of ‘Entrepreneurial Orientation’, Organizational Entrepreneurial

Environment’, and the ‘External Entrepreneurial Environment’ as independent variables on Entrepreneurial Performances’; and the second set of regression tests examined predicting effects of the ‘Organizational Entrepreneurial Environment’, the ‘External Entrepreneurial Environment’, and the Entrepreneurial Performances’ as independent variables on ‘Entrepreneurial Orientation’. The analysis is contained in the Model Summary, ANOVA, and Coefficients Output (Meyers, et al, 2006:216). In this study a stepwise regression method was employed. The sample requirements for multiple regression was considered before analysis and found to be fulfilled according to the guidelines given by Stevens (1996; in Pallant, 2007:148). The coefficients’ outputs from the standard regression analysis on dependent variables are presented. Accordingly, once the multiple regression diagnostic considerations have been addressed through the collinearity and multicollinearity tests, the evaluation of the “heart” of the multiple regression outputs are followed. Finally, the tolerance and VIF are provided to be used to obtain the regression weights produced by each of the analysis. The tests of correlations which are made in identifying collinearity or multicollinearity for all the variables are presented in Table 6.41 below.

Table 6.41

Correlations across Variables and Constructs in AAU (n=38) and BDU (n=40)

University	Variables	Entrepreneurial Orientation	Organizational Entrepreneurial Environment	External Entrepreneurial Environment	Overall Entrepreneurial Performance
Addis Ababa University (n=38)	Entrepreneurial Orientation	1			
	Organizational Entrepreneurial Environment	.720**	1		
	External Entrepreneurial Environment	.551**	.368*	1	
	Overall Entrepreneurial Performance	.586**	.612**	.330*	1
Bahir Dar University (n=40)	Entrepreneurial Orientation	1			
	Organizational Entrepreneurial Environment	.850**	1		
	External Entrepreneurial Environment	.657**	.763**	1	
	Overall Entrepreneurial Performance	.694**	.665**	.683**	1

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed)

Table 6.41 shows the tests of correlations which are made in identifying collinearity or multicollinearity for all the variables. Consequently, it is easy to spot that all the variables are with correlations ranging from .199 to a .854. Using the guidelines of r value interpretation suggested by Cohen (1988) in Pallant (2007:132), most of the correlations between the constructs

and variables are said to be in a range of strong  $r = .50$  to  $1.0$ , while some are medium  $r = .30$  to  $.49$ , and only few cells are at low level,  $r = .10$  to  $.29$ , whereby multicollinearity is not a major concern. Therefore, assuring that there are no observed violations of normality, linearity, and multicollinearity, the study proceed with confidence to an assessment of entrepreneurialism in AAU and BDU using tests of multiple regression.

Table 6.42

Model Summary Output from the Standard Regression Analysis of ‘Entrepreneurial Performances

University	Model	Variable	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
							R Square Change	F Change	df 1	df2	Sig. F Change
AAU	1	Organizational Environment	.607	.369	.351	23.25445	.369	21.013	1	36	.000
	1	Entrepreneurial Orientation	.663	.439	.425	20.99079	.439	29.774	1	38	.000
BDU	2	Entrepreneurial Orientation, External Environment	.728	.530	.504	19.47985	.091	7.123	1	37	.011

The above Model Summary in Table 6.42 provides a variety of measures assessing the success of the model in predicting the ‘overall performance’ as a dependent variable of AAU and BDU entrepreneurialism. The value of R for ‘organizational environment’ of Model 1 in AAU is  $R = .607$ ; while in BDU,  $R = .663$  to ‘EO’ in Model 1; and  $R = .728$  to ‘EO’ and ‘External Business Environment’ in Model 2. These are the Pearson correlations between predicted values of the ‘Entrepreneurial Performance’ as a dependent variable and the actual values of the dependent variable itself.

The ( $R^2$ ) coefficient of ( $R^2 = .369$  to AAU); and ( $R^2 = .439$ ; and  $R^2 = .530$  of BDU) depicts the amount of variance of the criterion variable accounted for by the combination of the respective independent variables in the model. The values of adjusted ( $R^2 = .351$  for AAU); and values of adjusted ( $R^2 = .425$ , and  $.504$  for BDU) are the more conservative indicators of the variance accounted for and should be used as the samples are small ( $<60$ ) in each cell (Tabachnick & Fidell, 2011; in Meyers, et al, 2006:216). Thus in this study, the values of adjusted  $R^2$  is considered and

about 35.1% of the ‘entrepreneurial performance’ variable’s variance in AAU is explained by ‘Organizational Environment’ in the regression model 1; while 42.5% of the ‘entrepreneurial performance’ variable’s variance in BDU is explained by ‘EO’ in regression Model 1, and 50.4% by the combination of ‘EO’ and ‘External Environment’ in Model 2.

Table 6.43

ANOVA Output from the Standard Regression Analysis of ‘Overall Entrepreneurial Performances’

University	Model	Variable		Sum of Squares	df	Mean Square	F	Sig.
Addis Ababa University	1	Organizational Environment	Regression	11363.166	1	11363.166	21.013	.000
			Residual	19467.703	36	540.770		
		Total	30830.868	37				
	1	Entrepreneurial Orientation	Regression	13118.702	1	13118.702	29.774	.000
			Residual	16743.298	38	440.613		
		Total	29862.000	39				
Bahir Dar University	2	Entrepreneurial Orientation, External Business environment	Regression	15821.809	2	7910.905	20.848	.000
			Residual	14040.191	37	379.465		
		Total	29862.000	39				

The ANOVA analysis in Table 5.43 provides a summary of the analysis of variance for regression. The significant F value,  $F(1, 36) = 21.013$ ,  $P < .001$ , indicates that a significant relationship exists between the weighted linear composite of the ‘organizational environment’ as the independent variable specified in model 1 and the dependent variable- ‘Entrepreneurial Performance’ in AAU. Similarly in BDU, the significant F value  $(1, 38) = 29.774$ ,  $P < .001$ , at Model 1; and the F value  $(2, 37) = 20.848$ ,  $P < .001$  indicate that a significant relationship exists between the weighted linear composite of ‘Entrepreneurial orientation’ and ‘entrepreneurial Performance’ in Model 1, and between both the ‘Entrepreneurial Orientation’ and ‘External Business Environment’ with ‘entrepreneurial performance’ in Model 2. This significant relationship allows to proceed with further analysis or interpretation of the multiple regression results, (Meyers, et al., 2006:216), if the F value was not statistically significant, it would inform that the prediction of the criterion variable by using the model is no better than chance.

Table 6.44

## Coefficients' Output from the Standard Regression Analysis of 'Entrepreneurial Performances'

University	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics		
		B	Std. Error				Zero-order	Partial	Partial	Tolerance	VIF	
AAU	1	(Constant)	48.579	15.980		3.040	.004					
	1	Organizational Environment	.812	.177	.607	4.584	.000	.607	.607	.607	1.000	1.000
BDU	1	(Constant)	33.477	16.380		2.044	.048					
	1	Entrepreneurial Orientation	.910	.167	.663	5.457	.000	.663	.663	.663	1.000	1.000
	2	(Constant)	21.745	15.824		1.374	.178					
	2	Entrepreneurial Orientation	.552	.205	.402	2.694	.011	.663	.405	.304	.571	1.752
		External Business	1.093	.410	.398	2.669	.011	.662	.402	.301	.571	1.752

Table 6.44 shows the coefficients' output from the standard regression analysis on Entrepreneurial performance. The table describes the relative importance of each independent variable i.e., 'Entrepreneurial Orientation', 'Organizational Environment', and 'External Business Environment' in the multiple regression equation or model. In this study, the variable of 'Organizational Environment' for AAU tends to have a statistically significant contribution to 'entrepreneurial performance' ( $t=4.584$ ,  $p<.001$ ) in Model 1. On the other hand the a critical look to the row of BDU reveals that, specifically in Model 1, the variable of 'Entrepreneurial Orientation' is likely to have a statistically significant contribution to the respective dependent variable ( $t= 5.457$ ,  $p<.001$ ); where as in Model 2, the variables 'entrepreneurial Orientation' ( $t= 2.694$ ,  $p<.05$ ), and 'external Business Environment' ( $t= 2.669$ ,  $P<.05$ ) are likely to have the statistically significant contributors relative potency to the recorded 'Entrepreneurial Performances'.

The zero-order correlations data reveal that in the row of AAU, 'organizational environment' is strongly correlated with 'Entrepreneurial Performance' ( $r=.607$ ). Further, the zero-correlation results in BDU are also statistically significant between 'EO and EP' at Model I, ( $r= .663$ ), 'EO and 'EP' at Model 2, ( $r= .663$ ); and 'External Business Environment' and 'Organizational

Performance' again, at Model 2 ( $r = .662$ ). The values of partial correlations between 'Entrepreneurial Orientation' and 'Performance' to AAU is ( $r = .607$ , and its squared value is,  $r^2 = .3684$ ). As observed in the row of BDU of Model 1, the partial correlations between 'Entrepreneurial Orientation' and the criterion variable ('Entrepreneurial Performance') is found to be ( $r = .663$ , and its squared value  $r^2 = .4395$ ); while in Model 2, ( $r = .405$ , and  $r^2 = .1640$ ) between 'Entrepreneurial Orientation' and 'Performance'; and ( $r = .402$ ,  $r^2 = .1616$ ) between 'External Business Environment' and 'Performance'). These all means that when the other variables are allowed to account for whatever dependent variable variance they can, then 'organizational environment' can account for 36.84 % in AAU. Moreover, 'Entrepreneurial Orientation' on Module 1 of BDU can account for 43.95%, and on Module II, 16.46%; while the 'External Business Environment' can account for 16.16% for the 'Entrepreneurial Performance' variance. These can also apply to the Part correlation as it is a semi-partial correlation which can indicate the unique contribution of the predictor variable for the model, whenever it is squared. Of course, the Part correlation values of BDU in Model II are different from the Partial ones, and the contribution of 'EO' is 9.24%, and to the 'External Business Environment' 9.06%.

Tolerance values of 0.01 or less, or VIF values greater than 10, indicate multicollinearity (Meyers, et al., p.213). In this study, the tolerance and VIF values are well within normal bounds, suggesting that multicollinearity is not present among these independent variables- AAU and BDU. Meanwhile, the detail examinations show that 'organizational entrepreneurial environment' was the statistically strong predictor of performance in AAU ( $P < .05$ ), while the roles of EO and External entrepreneurial environment are found to be statistically significant predictors in BDU ( $P < .05$ ). However, the variables of 'EO' and 'External business environment' are among the non-significant contributor variables in the stepwise method of the Model 1 regression analysis in AAU. This tells the limited predicting effect of both EO and EE variables in AAU. In turn, though the predicting power of 'organizational entrepreneurial environment' to 'Performance' was appearing strong in AAU, the contribution of this variable is not found to be significant in BDU's Models of 1 and 2 regression analyses.

In the regression analysis made to test the prediction effects of Entrepreneurial Orientation, organizational environment and external environment on entrepreneurial performance, through Tables 45-47, it is found that in AAU, about 35.1% of the 'entrepreneurial performance' variable's

variance is explained by ‘Organizational Environment’ in the regression model 1; These all means that when the other variables are allowed to account for whatever dependent variable variance they can, then ‘organizational environment’ can account for 36.84 % in AAU. On the other hand, in BDU, 42.5% of the ‘entrepreneurial performance’ variable’s variance is explained by ‘EO’ in regression Model 1, and 50.4% by the combination of ‘EO’ and ‘External Environment’ in Model 2. These all means that when the other variables are allowed to account for whatever dependent variable variance they can, then, ‘Entrepreneurial Orientation’ on Module 1 of BDU can account for 43.95%, and on Module II, 16.46%; while the ‘External Business Environment’ can account for 16.16% for the ‘Entrepreneurial Performance’ variance. Therefore, detail examinations show that ‘organizational entrepreneurial environment’ was the statistically strong predictor of performance in AAU ( $P < .05$ ), while the roles of EO and External entrepreneurial environment are found to be statistically significant predictors of performance in BDU ( $P < .05$ ). In turn, though the predicting power of ‘organizational entrepreneurial environment’ to ‘performance’ was appearing strong in AAU, the contribution of this variable is not found to be significant in BDU’s Models of 1 and 2 regression analyses.

Table 6.45

The Model Summary Output from the Standard Regression Analysis of Entrepreneurial Orientation

University	Mode	Variable	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
							R Square Change	df	df2	Sig. F Change	
AAU	1	Organizational Environment	.705	.497	.483	18.24584	.497	35.634	1	36	.000
	2	Organizational Environment, External Environment	.761	.580	.556	16.92430	.082	6.842	1	35	.013
BDU	1	Organizational Environment	.854	.730	.723	10.62025	.730	102.589	1	38	.000

Table 6.45 provides the Model Summary consisting of a variety of measures assessing the success of the model in predicting the ‘Entrepreneurial Orientation’ as a dependent variable of AAU and BDU entrepreneurialism. The value of R for Model 1 in AAU depicts ‘organizational

environment' with  $R=.705$ ; and for Model 2 both the 'Organizational Environment' and the 'External Business Environment' with  $R=.761$  as the predictors of 'Entrepreneurial Orientation'. On the other hand, the value of  $R$  for Model 1 in BDU shows 'Organizational Environment' as predictors of 'EO' with  $R=.854$ . These are the Pearson correlation between predicted values of the dependent variable- 'Entrepreneurial orientation' and the actual values of the dependent variable itself.

The ( $R^2$ ) coefficient to AAU indicates  $R^2=.497$  to Model 1 i.e., 'organizational environment' and  $R^2=.580$  to Model 2 i.e., for both variables of 'Organizational Environment' and the 'External Business Environment'). The ( $R^2$ ) coefficient to BDU portrays  $R^2=.730$  for Model 1. However, the values of adjusted  $R^2=.483$  and adjusted  $R^2=.556$  for AAU; and values of adjusted  $R^2=.723$  for BDU are the more conservative indicators of the variance accounted for and used in this study, as the samples are small ( $<60$ ) for each cell (Tabachnick & Fidell, 2011; in Meyers, et al., 2006:216). Thus, the values of adjusted  $R^2$  is considered and it is found that 48.3% of the 'entrepreneurial orientation' variable's variance in AAU is explained by 'Organizational Environment' under Model 1; while 55.6% of the 'entrepreneurial orientation' variable's variance is explained by the combination of both the 'Organizational environment' and the 'external environment' in the same university. Nevertheless, the values of the adjusted  $R^2$  in BDU illustrates that the variable 'Organizational environment' predicts 72.3% of the 'Entrepreneurial Orientation' which is exhibited within the institution.

Table 6.46

## ANOVA Output from the Standard Regression Analysis of Entrepreneurial Orientation

University	Model	Variable		Sum of Squares	df	Mean Square	F	Sig.
AAU	1	Organizational Environment	Regression	11863.029	1	11863.029	35.634	.000
			Residual	11984.787	36	332.911		
			Total	23847.816	37			
	2	Organizational Environment, External environment	Regression	13822.698	2	6911.349	24.129	.000
			Residual	10025.117	35	286.432		
			Total	23847.816	37			
BDU	1	Organizational Environment	Regression	11570.969	1	11570.969	102.589	.000
			Residual	4286.006	38	112.790		
			Total	15856.975	39			

Table 6.46 provides a summary of the analysis of variance for regression, the ANOVA. The significant F value,  $F(1, 36) = 35.634$ ,  $P < .001$ , in Model 1 of AAU's row indicates that a significant relationship exists between the weighted linear composite of the 'organizational environment' as the independent variable and the 'Entrepreneurial Orientation' as the dependent variable. Similarly,  $F(2, 35) = 24.129$ ,  $P < .001$  of information in Model 2 of AAU's row indicates that significant relationships exist between the weighted linear composite of the combinations of both the 'organizational environment' and 'External Environment' as the independent variables and the 'Entrepreneurial Orientation' as the dependent variable. In relation to BDU, the significant F value  $(1, 38) = 102.589$ ,  $P < .001$ , at Model 1 indicates that a significant relationship exists between the weighted linear composite of 'Organizational Environment' as independent variable and 'Entrepreneurial Orientation' the dependent one. This significant relationship allows proceeding with further analysis or interpretation of the multiple regression results, because as it was argued by Meyers, et al. (2006:216), prediction of the criterion variable by using the model is not by chance since whenever statistically significant F values are there.

Table 6.47

The Coefficients' Output from the Standard Regression Analysis of 'Entrepreneurial Orientation'

University	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics		
		B	Std. Error				Zero-order	Partial	Partial	Tolerance	VIF	
Addis Ababa University	1	(Constant)	11.557	12.539	.922	.363						
		Organizational Environment	.830	.139	.705	5.969	.000	.705	.705	.705	1.000	1.000
	2	(Constant)	27.502	18.927	-1.453	.155						
		Organizational Environment	.701	.138	.596	5.079	.000	.705	.651	.557	.873	1.146
Bahir Dar University	1	External Business Environment	1.190	.455	.307	2.616	.013	.519	.404	.287	.873	1.146
		(Constant)	19.400	7.769	2.497	.017						
		Organizational Environment	.741	.073	.854	10.129	.000	.854	.854	.854	1.000	1.000

Table 6.47 depicts coefficients' output from the standard regression analysis on Entrepreneurial Orientation. It describes the relative importance of each independent variable i.e., 'Organizational Environment', 'External Business Environment' and 'entrepreneurial performances' in the multiple regression equation or model. The coefficients output allows to examine the outcome of the t-test for each predictor's regression weight (OE, EE, and EP) while the t- tests and significance levels allow to assess each variable's unique contribution to the prediction of 'Entrepreneurial Orientation' as the dependent variable. In the present study, if one looks to the row of AAU, the variable of 'Organizational Environment' tends to have a statistically significant contribution to 'Entrepreneurial Orientation' ( $t= 5.969$ ,  $p < .001$ ) in Model 1; while in Model 2, the two variables i.e., the 'Organizational Environment' ( $t= 5.079$ ,  $p < .001$ ), and 'External Business Environment' ( $t= 2.616$ ,  $P < .05$ ) tend to have a statistically significant contribution to 'Entrepreneurial Orientation'. On the other hand, the row of BDU, Model 1 reveals that it is only the 'Organizational Environment' variable which is likely to have a statistically significant prediction to the 'entrepreneurial Orientation' ( $t= 10.129$ ,  $P < .001$ ).

In relation to the zero-order correlations, as observed in the row of AAU, 'organizational environment' is strongly correlated with 'Entrepreneurial Orientation' in Model 1 and II each accounting ( $r=.705$ ). In addition, in Model II, the 'External Business Environment' of AAU is strongly correlated with the 'Entrepreneurial Orientation' ( $r= .519$ ). On the other hand, the zero-correlation results in BDU are also statistically significant between 'Organizational Environment' and 'Entrepreneurial Orientation' at Model I, ( $r= .854$ ). The values of partial correlations between 'Organizational Environment' and 'Entrepreneurial Orientation' to AAU for Mode 1 is ( $r= .705$ , and its squared value is,  $r^2 =.4970$ ); while in Model 2, ( $r= .651$ , and  $r^2 = .4238$ ) between 'Organizational Environment' and 'Entrepreneurial Orientation'; and ( $r= .404$ ,  $r^2 = .1632$ ) between 'External Business Environment' and 'Entrepreneurial Orientation'.

Further, as observed in the row of BDU of Model 1, the partial correlations between 'Organizational Environment and 'Entrepreneurial Orientation' found to be ( $r= .854$ , and its squared value  $r^2 = .7293$ ). These all means that when the other variables are allowed to account for whatever dependent variable variance they can, then 'organizational environment' can account for 49.70 % in Model 1 of AAU. In addition, it is observed that in Model 2, 'Organizational Environment' accounts, 42.38%, and 'External Business Environment' 16.32% in AAU. Moreover, the 'Organizational Environment' variable is found to be potent contributor to 'Entrepreneurial Orientation' on Module 1 of BDU which can account for 72.93%. These can also apply to the Part correlation as it is a semi-partial correlation which can indicate the unique contribution of the predictor variable for the model, whenever it is squared. Of course, the Part correlation values of AAU in Model II are different from the Partial ones, and the contribution of 'Organizational Environment' is 31.02%, and the 'External Business Environment' is only 8.23%.

Consequently, detail examinations of the Table 50 above depicts the predicting roles of 'Organizational environment', 'External business environment' and 'Entrepreneurial Performance' as Independent variables to the 'Entrepreneurial Orientation' as a dependent variable. Accordingly, the Model 1 coefficient results to AAU shows 'Organizational environment'; and in Model 2, both the 'Organizational environment' and the 'External business environment' that are statistically significant predictors of the Entrepreneurial orientation ( $P < .05$ ). On the other hand, the Model 1 coefficient results of BDU show that it is only the 'Organizational entrepreneurial environment' variable that has a statistically significant

predicting power to the 'Entrepreneurial Orientation' ( $P < .05$ ). In both universities, the 'Entrepreneurial Performance' variable and specifically in BDU, the 'External Business Environment' too does not found to be contributing to the entrepreneurial orientations.

Moreover, other dimensions of organization especially size and technology also have remarkable influence on centralization in such a way that bigger size of the organization and having more experienced experts as well as proper communicative network adequate for updated technology leads to more decentralization and less authority.

In the regression analysis made to test the prediction effects of organizational environment, external environment and entrepreneurial performance on the entrepreneurial orientation, through Tables 48-50, it is found that in AAU, 48.3% of the 'entrepreneurial orientation' variable's variance is explained by 'Organizational Environment' under Model 1; while 55.6% of the 'entrepreneurial orientation' variable's variance is explained by the combination of both the 'Organizational environment' and the 'external environment' in the same university. These all means that when the other variables are allowed to account for whatever dependent variable variance they can, then 'organizational environment' can account for 49.70 % in Model 1; and in Model 2, 'Organizational Environment' accounts, 42.38%, and 'External Business Environment' 16.32%. Therefore, in AAU, the variable of 'Organizational Environment' tends to have a statistically significant contribution to 'Entrepreneurial Orientation' in Model 1; while in Model 2, the two variables i.e., the 'Organizational Environment' and 'External Business Environment.' On the other hand, in BDU, 72.3% of the 'Entrepreneurial Orientation' variable's variance is explained by the 'Organizational environment'. These all means that when the other variables are allowed to account for whatever dependent variable variance they can, then in Model 1, the 'Organizational Environment' variable is likely to have a statistically significant prediction to the 'entrepreneurial Orientation', which can account for 72.93%. However, the variable 'performance' has no a backward predicting effect on entrepreneurial orientation in both case study universities.

In conclusion, the research findings from this study were presented from the results and discussions of these key variables covered by this chapter namely, entrepreneurial orientation, entrepreneurial performances, organizational and external environments. Each variable consisted

of different constructs. Firstly, an entrepreneurial orientation dimension consisted of autonomy, innovativeness, proactiveness, competitive aggressiveness and risk-taking. Secondly, entrepreneurial performances consisted of knowledge/technology transfer, internationalization, entrepreneurship education, and pathways for entrepreneurs. Thirdly, the organizational environment used constructs of control system, organizational structure, HRM system, leadership behavior and entrepreneurial culture. Fourthly, the external environment used dynamism, hostility, and heterogeneity. Finally, the similarities and variations towards entrepreneurialism between the case study universities and the interactions among them were tested, analyzed and interpreted along with earlier theories and empirical evidence that were thoroughly discussed in the earlier chapters.

## **CHAPTER VII: SUMMARY, CONCLUSION AND RECOMMENDATIONS OF THE STUDY**

### **7.0 Introduction**

This chapter provides a summary of the major findings and conclusions of the study. The first section of the chapter begins with a brief overview of the research agenda, followed by a summary of the empirical findings. Finally, conclusions, further reflections and implications of the study for creating of an entrepreneurial university are drawn and discussed.

### **7.1. The Research Agenda**

Universities have long been considered important in the production of scholarship and new ideas, and for the training of elites, and recently also in the development of economic progress. In particular, the roles of universities in economic growth have evolved in time and grew beyond their traditional teaching and research tasks. Entrepreneurialism in higher education is regarded as a strategic choice to engage in innovative and entrepreneurial activities, in response to changing socio-cultural expectations about the role of modern universities in the broader economic context and society in general. Further, the complexity of the world is constantly adding new challenges for higher education institutions even though all the challenges do not require direct responses from them. Yet, in their totality, these challenges raise questions about the contemporary shape and constitution of the higher education sector. Meanwhile, scholars call for a ‘deep, radical and urgent transformation’ questioning in particular the relevance of traditional conceptual and organizational models of higher education institutions. Accordingly, subjects revolving around university entrepreneurship and knowledge commercialization have drawn the attention of many researchers in different countries of the world. This study attempts to explore the institutional proximity to entrepreneurial university: with particular references to Addis Ababa and Bahir Dar Universities. To guide the processes of data collection and analysis, the main research objective was broken down in to the following 7 research questions: (i) How are the entrepreneurial orientation scenarios in AAU and BDU? (ii) How are the entrepreneurial performance landscapes in AAU and BDU? (iii) How are the proximities of performances in AAU and BDU to/from entrepreneurialism? (iv) How are the resource mobilization and diversification performances in AAU and BDU? (v) How do the organizational and external factors operating towards entrepreneurialism in AAU and BDU? (vi) What are the patterns of variations/similarities

between AAU and BDU in their practices towards entrepreneurial universities? (vii) How predictive are the variables of entrepreneurial orientation, organizational and external environments, on each of the constructs and the overall entrepreneurial performance variable in AAU and BDU?

Accordingly, the specific objectives of the study were: to find out the manifestations of entrepreneurialism comparatively in AAU and BDU through assessing the entrepreneurial orientation and the performance landscapes mainly, in relation to knowledge/technology transfer, internationalization, entrepreneurship education, pathways for entrepreneurs, and resource mobilization; to determine the institutional performance proximity to /distant from entrepreneurialism; and to describe the state of organizational and external factors operating for/against entrepreneurialism. It was also planned to test the predicting roles of the entrepreneurial orientation, organizational and external entrepreneurial environment variables on each construct and the overall entrepreneurial performance variable of both universities.

To this end, research issues were addressed from the critical review of entrepreneurship literature in Chapter IV and different entrepreneurial and organizational theories to academic organizations. Specifically, this study paid close attention to the theories of marketization, knowledge spill-over theory of entrepreneurship, resource-based view, and resource dependency theory, from the economic approach; attitude theory from socio-psychological, and institutional theory from the strategic management approaches. Besides these theories, contemporary models in the fields of entrepreneurial university such as: Clark's (1998, 2004) entrepreneurial pathways of university; (ii) Etzkowitz's (2001, 2004) norms of the entrepreneurial university; (iii) Slaughter's (1997, 2004) capitalization of research or academic expertise; (iv) Rothaermel, et.al., 's (2007) conceptual framework of the entrepreneurial university; (v) Kirby's Strategic actions of the entrepreneurial university; (vi) Aranha and Garcia's (2014) metamodel of entrepreneurial university; and (vii) NCEE's (2013) creating strategic synergy between existing activities of universities are used as lenses.

The study was guided by the pragmatic paradigm. Since the choice of a research methodology and the tactical decisions depend on the ontological and epistemological choices already made and the objectives of a particular study, the research methodology employed for this study was a

mixed-method strategy, whereby pure mixed variety was followed equally. This is due to the premise that entrepreneurialism in higher education is a complex and multifaceted phenomenon that involves the perspectives of different actors and requires the collection and analysis of data drawn from different sources using a variety of methods. The quantitative approach was employed to capture the perceptions of the sampled respondents regarding entrepreneurial orientation, organizational/internal entrepreneurial external environments, and entrepreneurial performance; whereas the qualitative approach was used to obtain data from documents and interview schedules about the types and forms of entrepreneurial activities in teaching, research and community service areas of universities; and to gain data about the types, streams, and magnitude of resources other than the government grant.

Two public universities namely, Addis Ababa University (AAU) and Bahir Dar University (BDU) were included in the study, considering the former as the only old, largest flagship university in the country, and the later for its largeness and old (as seen from the founding institute and college perspectives). As entrepreneurial activities in universities are primarily expected to start flourishing in the business schools, science and engineering related fields, the sources of data were determined to be leadership members at the university level, and at colleges/ institutes specifically related to business and engineering. Thus, the sample population was drawn among the office holders of the case study universities i.e. from: (a) the university level, (b) Colleges of business and Economics, and (c) Institutes of Technologies using a convenient, purposive and random sampling techniques. A total of 92 samples (46 from each university) were drawn to take part in the study.

Questionnaires, interviews, documents and observations were employed to gather data for this study. To increase the validity of both of the instruments and the entire study, various strategies such as triangulation, member checking and face validity assessment were made. The content validity of the qualitative instrument was judged and approved by three professors from different departments at BDU. The internal consistency of the instruments was tested through the reliability of the pilot study results using Cronbach alpha. The quantitative and qualitative data were collected simultaneously but analyzed separately taking the university as the unit of analysis. The total response rate of the questionnaire was 82% for AAU and 87% for BDU. Version 20 of the SPSS package was used to encode the quantitative data and analyzed using both descriptive and

inferential statistics; mainly, Independent Samples t-test, MANOVA, and Multiple Regression. A 0.05 alpha level of significance was used to decide whether the observed differences are statistically significant. The analysis and reporting of the results of the qualitative data were made through clustering or categorizing the items to minimize an overload of information that is difficult to absorb and condense, to make reporting results more meaningful, and to improve the reliability of the scores themselves. Important ethical issues of qualitative research were emphasized to treat the participants ethically. Based on these, the following major findings, conclusions and recommendations were drawn from the study.

## **7.2 Summary of Findings**

Findings presented in this sub-section are based on each of the five research questions and drawn from presented, the analyzed and interpreted data in the preceding chapters.

### **Entrepreneurial Orientation**

The findings in this study provided useful insights regarding the entrepreneurial orientation scenarios in AAU and BDU along the constructs constituting the variable. Accordingly, both AAU and BDU are found to be granted organic autonomy, related to academic mandate; procedural autonomy, like financial, and staffing; and substantive autonomy, such as the right of the universities to determine on internal governance and decision-making structures/bodies, and introduce new academic structures (faculties, departments, research centers, etc.). Both institutions have a number of recorded innovations related to processes, products, marketing and organizational affairs, especially, through processes of ‘doing new things’, ‘doing the existing things better’, and in bench-mark engagements for ‘creative imitations’. Besides, the proactiveness intentions of the institutions are found to be reflected not only in their respective missions, values and strategic issues, but also in restoring reputation through solving specific problems of the environment; contributing to the economic development of the country; extending of vertical and horizontal services in teaching; and mobilizing of resources for the overall successes of the missions.

Moreover, the tendency of AAU and BDU to outperform others is observed in efforts for qualities in teaching; more visible and competitive researches; attractive study programs; famous

professors; and for organized university and more entrepreneurial engagements. In addition, planned measures for the enhancement of local and international standing, achievement of positive public image, improvement of reputability, attainment of global linkages and partnerships, improvement of staff and student exchanges, and attraction of experts and budget are all indicators for the institutional engagements in competitive aggressiveness. Further, the increased market surveillance, and the observed business and advertising cultures of the universities through the national media for post-graduate and undergraduate part-time students of all programs reveal that the case study universities are commonly competing not only for quality teaching, research and community services but also for businesses. Furthermore, both universities are found to be engaged in risks related to business, management, and image through establishments of business companies with a number of different units which could serve universities to test their boundaries than stay with stabilities; and to value entrepreneurial orientation than the conservative position. Therefore, these findings show that AAU and BDU are more or less exercising the elements of entrepreneurial orientation.

However, data also reveal that there are some limitations related to each constructs of the entrepreneurial orientation dimension in both universities. For instance, interferences in the centralization of undergraduate student admission; remuneration policies for academic and administrative staff and the externally imposed standards on the use of financial resources and the management of human resources respectively are among the listed constraints in directing the entrepreneurial strategies of university activities with proper flexibility and agility. In addition, the proxy indicator of innovativeness in a university such as the percentage of scientists and engineers relative to the total number of employees, and expenditures for research and development looks to be lower in both cases though comparatively seen AAU is in a better position than in BDU. In relation to the proactiveness, the prevailing ways of engaging in entrepreneurial issues were reported to be characterized by waiting for instructions (reactive measures) instead of taking initiatives (proactive measures). Further, data about the volume, duration, complexity and predictability of institutional competitions tends to be lacking; and locating institutional positions from the national, regional and international ranking log tables tends to be less bothersome for respondents in both institutions. These all may indicate the prevalence of some limitations in bringing about fully entrepreneurial orientated institutions.

The comparative view of entrepreneurial orientation scenarios in AAU and BDU reveal that even though the examination of documents and the information obtained through interview schedules tend to show some variations in the volume of entrepreneurial activities related to the constructs of innovativeness, proactiveness, and competitive aggressiveness categories in favor of AAU, there are more or less similar engagements in all the sub-variables of the dimension. The descriptive and inferential analysis made on the basis of responses for the questionnaire, in particular, the independent samples t-test which was administered to find out the multidimensional result of each construct and the MANOVA test for the uni-dimensional results did not indicate for the presence of statistically significant differences on entrepreneurial orientation variable among universities, which imply that both case study universities are to be found nearly at the same footing regarding the entrepreneurial orientation.

### **Entrepreneurial Performances**

The performances of AAU and BDU in knowledge/technology transfer, internationalization, entrepreneurship education, and pathways for entrepreneurs show that the case study universities are found to be involved in different performances. For instance, in relation to knowledge/technology transfer, both institutions are reported to be actors as a major learning source for regional stakeholders in the course of their outreach education and training programs; suppliers of skilled young people; participants in independent evaluation researches; contributors as a leading network hub for regional development issues; supporters to the communities through different specialties and expertise; and actors as an intermediary in articulating regional development issues to central government in areas like technology, education and skills development. Additional knowledge transfer practices whereby the case study universities are found to be engaged include: licensing, research contracts and consultancy, collaborative research, external training, mobility programs for research staff, student placements in enterprises, technology centers, incubators (mainly ICT-related), and cluster initiatives. With regard to internationalization, beyond the structural set ups dealing with external relations and communications to work on bringing new collaborations, strengthening the existing ones, coordinating and facilitating the signing of new MoU's with various local, national international institutions, internationalization in AAU and BDU are found to take place in both fronts, i.e.,

‘Internationalization at home’ and ‘Internationalization abroad’ but more emphasis tends to be in favor of the ‘*academic/ reputational*’ dimension rather than the ‘business’ one.

Further, of the available four varieties of entrepreneurship education, only the two i.e., ‘Entrepreneurship as an integrated and synthetic subject’ and ‘Entrepreneurship as an add-on subject’ are offered to students in the Colleges of Business and Economics (COBE), and the Institutes of Technology (AAiT & BiT) respectively. Besides, both universities create infrastructures within their campuses such as offices of University-Industry Linkages (UIL), and Centers or Clubs to organize entrepreneurial curricular and extracurricular activities. Above all, the cases under discussion provide teaching to students ‘about’, ‘for’, and ‘through’ entrepreneurship with a maximum of 3 credit hours course work (to COBE, AAiT & BiT), and a semester-based out-reach packages (to AAiT, BiT and Colleges of Medical Sciences). For the purposes, universities found to use radiant model, for the teacher assignment whereby individual departments develop their own entrepreneurship faculty and course other than the magnetic model, which demand to pull specialists from relevant departments. Moreover, of the pathways for entrepreneurs, there are packages of supports organized by AAU and BDU for graduate students who wish to be entrepreneurs such as awareness-raising trainings on entrepreneurship ranging from 2 days to a week- long duration, per annum. In addition, initiatives so-called events of ‘inspirational days’ for all graduating students of both universities whereby businessmen have been presenting their work experience, celebrations of ‘Job-fair and Entrepreneurship Day’ and software trainings on Mobile-based Job search (M. Jobs) mechanisms (College of Business and Economics) are in place.

Nevertheless, lack of a compiled strategy documents or action plans about institutionalization of entrepreneurship education throughout the universities; nonappearance of attempts in addressing entrepreneurship studies as a majoring field of study, either at undergraduate or post graduate levels; non-existence of embodiments of the entrepreneurship education across the curriculum to create multidisciplinary knowledge other than addressing it by one (marginal) subject in the reported units; and low regards towards entrepreneurship focused research (except very few individuals’ Master theses in AAU) were the challenges most frequently cited by respondents, and discovered from documents. In addition, absences of need-based entrepreneurship courses and impact assessments, opportunities to student in consulting projects with the support of

university staff, courses for prospective teachers of entrepreneurship to enable them understand the entrepreneur's environment and behavior and to develop their teaching approaches are the other aspects of limitations. Moreover, of the supports expected to be made for smooth pathways for entrepreneurs, awareness raising mechanisms on entrepreneurship issues for either faculty or administrative staff; access to start-up capital, collaterals and credits; policies and regulations on how to initiate students and teachers to be entrepreneurs are lacking. Therefore, the case study universities are not offering a helping hand to those students, faculty or staffs who wish to be entrepreneurs. The reasons may be attached partly to lack of awareness among universities' leadership about the importance of entrepreneurship; and partly because the university leadership does not think that faculty and staff has the right to be engaged in entrepreneurial activities while also working for the university.

In the meantime the comparisons made to test the variations between AAU and BDU regarding the entrepreneurial performances, qualitative explanations reveal that there are some variations between AAU and BDU in the types and volumes of activities related to knowledge transfer, internationalization and entrepreneurship education, but the descriptive statistics and inferential analysis made on the basis of responses for the questionnaire, in particular, the independent samples t-test which was administered to find out the multidimensional result of each construct did not indicate for the presence of statistically significant differences on entrepreneurial performance variable among universities. In addition, despite a statistically significant effect was evidenced in multivariate tests, Tests of Between Subjects Effects on Entrepreneurial Performances' (univariate effect) for each sub category of entrepreneurial performance is not significant, therefore, entrepreneurial performances do not vary between both case study universities. These all suggest that both universities are at about equal footing in relation to entrepreneurial performances.

### **Proximity of performances to entrepreneurialism**

The case study universities are highly engaged in the softer entrepreneurial performances such as *producing skilled and qualified graduates*, *publishing*, *grantsmanship*, *consultancy*, *training and*

*contract research than with the harder ones.* Further, in spite of the practiced aspects of indirect commercialization of knowledge which is reflected by case study universities' close relationship with industry, including contractual consulting for industry, conducting projects ordered by industry, and research collaboration with industry; the direct commercialization of knowledge which is characterized by active pursuit of profit and managerial engagement in industry tends to be less strengthened. In particular, despite both universities seem to start putting their toes in the hard forms of entrepreneurship such as patenting and licensing but they are still at a distant from the more substantial and mature entrepreneurial activities like the Spin-off, Venture Formation, and *Establishment of Science and Technology Parks.*

However, this study shows that the entrepreneurial performances in AAU and BDU are not immune of limitations. Data reveal that approaches like spin-offs, technology brokers, science parks, and supports for graduate entrepreneurship, technology networks and venture capital funds are not actually observed. Most of the business dimension of international aspects are underexploited in both universities, particulars are international mobility of scientists and students to new educational and research environments; partnerships with higher education institutions abroad that facilitate staff and student exchanges; international joint degree programs; opening of campuses abroad; opening up of wider links through distance learning approaches; building stronger linkages with local international businesses; recruitment of international fee paying students and closer engagements with alumni.

### **Performances in Resource mobilization and diversification**

The resource mobilization and diversification performances of AAU and BDU reveal that the activities are revolving around the following eight domains: (1) instructional initiatives; (2) research and analysis initiatives; (3) pricing initiatives; (4) reforms in financial decision making and management; (5) human resource initiatives; (6) franchising, licensing; sponsorship, and partnering arrangements with third parties; (7) initiatives in auxiliary enterprises, facilities, and real estate; and (8) development office initiatives. Despite sporadic use of several types of resource mobilization activities in each of the eight domains, there are also some aspects in each of the initiatives, from both universities, which seem to get less attention in using the specific activities as pools of resources. These include among others: online applications, online course

delivery, embedded campus-based brick and click instructional services; differentiation of pricing structures by considering status of students (e.g., from under-served groups); pursuit of resource generation initiatives from research and technology centers and parks; e-commerce, i.e., using the web and internet for selling institutional research and analysis services; fee-based information services, for off-campus parties; collaborations with externally based partners such as outsourcing contracts for-profit corporations with the aim of revenue guarantees from legal services, child care, teaching hospitals etc.; use of university “brand” itself and its distinctive logos and emblems e.g., by soft drink companies; generation of resources from: remedial classes, tours and camps, scholarly conferences, and concert series; renting or selling of assets like buildings and land to donors or corporations; arrangements of debit cards for purchasing on-campus products and services; compensation and promotion processes to provide more explicit incentives for faculty’s revenue-generating activities; and tapping alumni as sources of revenues.

In relation to the volume of generated resources from different dimensions, though AAU and BDU offer both academic and non-academic services and products to their stakeholders to acquire resources, earned resources from development initiatives (grantsmanship) and instructional services formed a significant part of the universities’ income other than the dimensions related to research and technology transfer initiatives or similar others.

### **Organizational Environment**

The third theme of this research was dealt with the factors of entrepreneurialism in the case study universities, i.e., the organizational and external environments. In this sub-section, data was analyzed about the features of each constructs of the organizational entrepreneurial environments in AAU and BDU. Consequently, the results on the control systems of the two universities indicate the availability of somehow flexible, convenient and accommodative work environment and responsibilities; characterized nearly by ‘a medium level’ of discretionary control, and have access ‘to some extent’ to funding for innovative and R&D projects and where most are felt trusted. It is also found that AAU and BDU have taken different measures on organizational systems, structures and processes for the purposes of overseeing, designing, and implementing entrepreneurial activities, and to promote suitable and convenient structural arrangements for entrepreneurship which include the establishments of TTOs, and Office for resource generation, mobilization and management at the levels of Vice Presidents for Research and Technology

Transfer, and Institutional Development respectively. Besides, beyond the arrangements made to create associated offices of Directorates; Centers of Innovation and Entrepreneurship operating in AAU and BDU; and institutional commitments for the basic democratic principles of decentralized and participatory decision making whereby college level units have started to make decisions on academic matters and on administrative issues pertaining to finance, procurement and human resource development among the structural arrangements found to be made in the case study universities. In addition, data reveal that case study universities have reward practices of both monetary (funds, scholarships, use of resources) and non-monetary (promotion, recognition systems) for those who may contribute not only in effective teaching, research and publications, but also public and professional services rendered in various capacities including the entrepreneurial activities.

Though difficult to claim on whether or not consciously done for the development of entrepreneurial culture, AAU and BDU are found to be involved in collaborations, community services, and civic engagements that have implications for it; and even universities are using such entrepreneurial-culture related activities as sources for the generation of revenues. Further, the institutional commitment of AAU to hold entrepreneurship as its in-house values by which members of the university need to follow is found to be reflected within one of the stated core values/principles i.e., the upholding and inculcating of *Entrepreneurial Spirit* among its community. There are also different mission-related, strategically oriented, and tactical activities made by the case study universities, which are inclined to be the outcomes of entrepreneurial leadership. In particular, the roles played in planning, contracting, and building infrastructure for economic development within the universities besides teaching and research; championing of innovative ideas and allocation of resources necessary to realize changes are entrepreneurial responses if viewed from the perspective of efforts to meet the ever changing societal needs and global standards. Furthermore, activities like lobbying governments and businesses for funds; and serving as ambassadors to the public at large to promote the image of the universities as the useful and meaningful institutions are to be recognized as an outcomes of entrepreneurial leadership behavior. Therefore, the obtained, analysed and presented data about the organizational entrepreneurial environments tends to show the relative supportiveness of the internal environments for entrepreneurship.

Nevertheless, despite the prevalence of reasonably supportive organizational environment in the case study universities, data sources show different limitations along each constructs of the respective dimension. For instance, routine practices of tight and comprehensive planning, budgeting, and monitoring systems; and the availability of strict central rules and procedures to be followed are found to be as challenges for entrepreneurship in AAU and BDU. In addition, informants' inability to prove whether or not AAU and BDU are pursuing a flat structure, eliminating intermediate units to minimize barriers between the center and base units, becoming accommodative of organizational flexibility, and facilitating open communication flow are aspects of limitations. Further, entrepreneurial attitudes and experience do not seem to play an explicit role as criteria for recruitment (of faculty and support staff) at AAU and BDU. Again, the occurrences of rewarding measures in alternating programs are condemned to be related to lack of explicitly designed packages of incentives and rewards that are put in place for entrepreneurship champions, staff, students and stakeholders who are promoting the entrepreneurial agenda on individual or team basis. Respondents' reluctance to confirm about the fulfillment of the requirements of entrepreneurial culture in the case study universities such as on the prevalence of optimum level win-win situation, satisfaction of employees for a feeling of being valued; reinforcement of ethics and trust among the employees; and establishments of teamwork as an organizational method and culture indicate limitations in building common knowledge across the institutional leadership. Finally, the tendency of the leadership in both institutions to keep-up with rules and regulations are reported to be operating against entrepreneurial orientation at work.

The comparative view of organizational environment in AAU and BDU using both the independent samples t-test which was administered to find out the multidimensional result of each construct; and the MANOVA test for the uni-dimensional results indicate for the presence of statistically significant differences. The main factors which are found to be operating for differences was examined using 'Tests of Between Subjects Effects' and the domino effect show that except the 'control system' construct all other 4 sub-variables i.e., 'organizational structure', 'HRM', 'entrepreneurial culture' and 'entrepreneurial leadership behavior' are found to be sources of differences among universities, indicating higher mean scores in BDU. Consequently, fostering entrepreneurship in universities, mainly in AAU calls more for internal organizational

factors related to organizational structure, HRM, entrepreneurial culture and entrepreneurial leadership behavior.

### **External Environment**

The other theme of this research which was dealt with the ecosystem of entrepreneurialism in universities is on external environment. The theme of the research question was related on 'How the features of the external entrepreneurial environments are in AAU and BDU?' The case study universities' intention to restore their standing through solving specific problems of the environment and contributing to the economic development of the country is anticipated to be succeeded from the opportunities the universities have recognized. However, the external environment was reported to be judged negatively by some whose views centered on the unpredictability of competitors, rapidly changing global and local research environments, and swiftly out-of-dated technologies, besides unpredictable demand for higher education. To the contrary, there were informants who positively state about the turbulence or predictability of the environment and about the degree of environmental munificent in providing resources. Relatively seen, the latter group seems to weigh up in the type of comments forwarded. Further, the hostility of external environments reported to be operating in one or the other way up on the case study universities include competition from local and international universities and consultants, increasing tendency of brain drain, competition from external employers for administrative employees, high competition for resources, existence of donor driven graduate programs and research, high rate of inflation, low attention to applied research, and unpredictable national and international trends. Additional threats reported to operate in BDU include shortage of competent academic staff in the market; insufficient number of qualified staff; unreliable market conditions that make the procurement of lab equipment and other utilities increasingly difficult; unbearable maintenance costs in the construction aspect; and inflations which resulted with the increasing cost of students' meal and accommodation. Further, universities are reported to be operating in diversified societal (government, private) demand for applied research and trained manpower, complex global development trends; ICT-assisted markets, high demand for community services and the like. These all show that the external environment of AAU and BDU are evaluated not as hard as to be a threat; or as comfortable as to be relaxed from taking up of entrepreneurial measures rather complex which call for entrepreneurial coping mechanisms.

Nonetheless, the specified external environment of the case study universities was also reported to have limitations towards creating entrepreneurial universities. Of which, less sensitization on the harsh roles of environmental dynamism emanated from the timely pressures of globalization, internationalization and knowledge societies; low sensitization on the fates of graduates and the probable lose of their level of knowledge and skills through time reflected with less regard to equip them with entrepreneurial skills; seemingly less awareness of the potential fierce competitions in the present universities rather the apparent interest to keep up with a relatively 'comfort zone' tend to be the positions reflected during the interviews, which imply the prevalent of low regard towards the effects of the external environment. In addition, comparisons were made to identify whether or not statistically significant difference was observed among the universities with regard to the factors of the 'external entrepreneurial environment'. Thus, the independent samples t-test which was administered to find out the multidimensional result of each construct; and the MANOVA test for the uni-dimensional results indicate no statistically significant differences regarding external entrepreneurial environment between the universities. This implies that the external ecosystem for entrepreneurship is perceived to be at a similar level of complexities, hostilities, and dynamites in both universities.

### **Interaction of Variables**

The results of the regression analysis made to identify the predicting effects of entrepreneurial orientation, organizational environment, and external entrepreneurial environment on performance reveal that in AAU, about 35.1% of the 'entrepreneurial performance' variable's variance is explained by 'Organizational Environment' in the regression Model 1; These all means that when the other variables are allowed to account for whatever dependent variable variance they can, then 'organizational environment' can account for 36.84 % in AAU. On the other hand, in BDU, 42.5% of the 'entrepreneurial performance' variable's variance is explained by 'Entrepreneurial Orientation' in regression Model 1; and 50.4% by the combination of 'EO' and 'External Environment' in Model 2. These all means that when the other variables are allowed to account for whatever dependent variable variance they can, then, 'Entrepreneurial Orientation' on Module 1 of BDU can account for 43.95%, and on Module II, 16.46%; while the 'External Business Environment' can account for 16.16% for the 'Entrepreneurial Performance' variance.

Therefore, detail examinations show that ‘organizational entrepreneurial environment’ was the statistically strong predictor of performance in AAU ( $P < .05$ ), while the roles of Entrepreneurial Orientation and External entrepreneurial environment are found to be statistically significant predictors of performance in BDU ( $P < .05$ ). In turn, though the predicting power of ‘organizational entrepreneurial environment’ to ‘performance’ was appearing strong in AAU, the contribution of this variable is not found to be significant in BDU’s Models of 1 and 2 regression analyses.

The results of the regression analysis made to identify the predicting effects of organizational environment, external environment and entrepreneurial performance on the entrepreneurial orientation reveal that in AAU, 48.3% of the ‘entrepreneurial orientation’ variable’s variance is explained by ‘Organizational Environment’ under Model 1, while 55.6% of the ‘entrepreneurial orientation’ variable’s variance is explained by the combination of both the ‘Organizational environment’ and the ‘external environment’ in the same university. These all means that when the other variables are allowed to account for whatever dependent variable variance they can, then ‘organizational environment’ can account for 49.70 % in Model 1; and in Model 2, ‘Organizational Environment’ accounts, 42.38%, and ‘External Business Environment’ 16.32%. Therefore, in AAU, the variable of ‘Organizational Environment’ tends to have a statistically significant contribution to ‘Entrepreneurial Orientation’ in Model 1, while in Model 2, the two variables i.e., the ‘Organizational Environment’ and ‘External Business Environment.’ On the other hand, in BDU, 72.3% of the ‘Entrepreneurial Orientation’ variable’s variance is explained by the ‘Organizational environment’. These all means that when the other variables are allowed to account for whatever dependent variable variance they can, then in Model 1, the ‘Organizational Environment’ variable is likely to have a statistically significant prediction to the ‘entrepreneurial Orientation’, which can account for 72.93%. However, the variable ‘performance’ has no a backward predicting effect on entrepreneurial orientation in both case study universities.

### **7.3 Conclusion**

The findings from the case study universities –AAU and BDU- clearly show institutional proximity to entrepreneurialism as seen from the scenarios of entrepreneurial orientation, and reveal that the exerted efforts by both institutions towards testing their boundaries prove that they are valuing entrepreneurial orientation than the conservative positions and stabilities. However,

there are also some limitations operating against bringing about fully entrepreneurial orientated institutions. Besides, data reveal that both AAU and BDU are engaged in a number of entrepreneurial performances related to knowledge/technology transfer, internationalization, entrepreneurship education, and pathways for entrepreneurs even though these aspects are not immune of challenges too. In particular, the assessment of performance proximities of case study universities towards entrepreneurialism, as seen from the traditional-entrepreneurial spectrum (Soft-Hard category) put their respective locations to lie with high density near the traditional spectrum but follow to the entrepreneurial paradigm with a corresponding decrease in concentration, and with minor favor to AAU.

Within the spectrum are entrepreneurial activities from soft to hard category respectively; and these match with the soft steps of performances starting with *producing of skilled and qualified graduates*, and followed by *publishing, grantsmanship, consultancy, training and contract research in that order* but both universities still at a distant position from the more substantial and mature hard entrepreneurial activities like the Spin-off Venture Formation, and *Establishment of Science and Technology Parks*. Further, the resource mobilization and diversification performances of AAU and BDU reveal that despite effective use of several types of resource mobilization activities in eight domains, there are also some aspects in each of the initiatives, which seem to get less attention in using them as pools of resources. The major missing aspect is argued to be from the entrepreneurial activities of hard category. Therefore, the performance proximity of the case study universities in a range of soft-hard category can be explained as a metaphor of *'shading from deep hue, through a decreased intensity of coloring, to non-color'*; as one goes from producing skilled and knowledgeable graduates to establishments of science and technology parks.

The second theme of this research which dealt with the entrepreneurial ecosystem in case study universities reveals the relative supportiveness of the internal environments for entrepreneurship. However, data sources also show different challenges along the constructs of control systems, organizational structure, HRM, entrepreneurial culture and leadership behavior. In addition, the external environment of AAU and BDU are evaluated not as hard as to be a threat; or as comfortable as to be relaxed from taking up of entrepreneurial measures rather complex which call for entrepreneurial coping mechanisms. Nevertheless, signs of strong

entrepreneurial coping mechanisms tend to be absenting; and improvement of internal capabilities toward entrepreneurialism seem to be missing.

In all variables, quantitative comparisons were made on the basis of the questionnaire data, and textual comparisons on the basis of the qualitative ones. Data from the latter source shows that except variations in the volume of entrepreneurial performances in favor of AAU, both AAU and BDU tend to demonstrate nearly similar level of entrepreneurial orientations, and found to be working in approximately homogeneous external entrepreneurial ecosystem. Especially, the possible explanations for the observed variations on performances are to be originated from the largeness of AAU, long standing reputations and age.

However, the quantitative analyses, rather, provided the clear picture of comparisons. Accordingly, independent samples t-test which was administered to find out the multidimensional result of each construct; and the MANOVA test for the uni-dimensional results did not indicate for the presence of statistically significant differences on entrepreneurial orientation variable among universities. Despite a statistically significant effect was evidenced in multivariate tests, Tests of Between Subjects Effects on Entrepreneurial Performances' (univariate effect) for each sub category of entrepreneurial performance is not significant, therefore, entrepreneurial performances do not vary between both case study universities. All these suggest that both universities are at about equal footing in relation to entrepreneurial performances. Moreover, comparisons were made to identify whether or not statistically significant difference was observed among the universities with regard to the factors of the 'external entrepreneurial environment'. Similarly, the results of both inferential statistical tests showed no significant overall difference regarding external entrepreneurial environment between the universities.

Nevertheless, comparisons on the organizational environment of AAU and BDU using both the independent samples t-test which was administered to find out the multidimensional result of each construct; and the MANOVA test for the uni-dimensional results indicate for the presence of statistically significant differences. The main factors which are found to be operating for differences was examined using 'Tests of Between Subjects Effects' and the domino effect show that except the 'control system' construct all other 4 sub-variables i.e., 'organizational structure', 'HRM', 'entrepreneurial culture' and 'entrepreneurial leadership behavior' are found to be

sources of differences among universities, indicating higher mean scores in BDU. Consequently, fostering entrepreneurship in universities, mainly in AAU calls more for internal organizational factors related to organizational structure, HRM, entrepreneurial culture and entrepreneurial leadership behavior.

The results of the regression analysis made to identify the predicting effects of entrepreneurial orientation, organizational environment, and entrepreneurial environment on performance reveal that 'organizational entrepreneurial environment' was the statistically strong predictor of performance in AAU ( $P < .05$ ), while the roles of Entrepreneurial Orientation and External entrepreneurial environment are found to be statistically significant predictors of performance in BDU ( $P < .05$ ). In turn, though the predicting power of 'organizational entrepreneurial environment' to 'performance' was appearing strong in AAU, the contribution of this variable is not found to be significant in BDU's Models of 1 and 2 regression analyses. Similarly, the results of the regression analysis made to identify the predicting effects of organizational environment, external environment and entrepreneurial performance on the entrepreneurial orientation reveal that in AAU, the variable of 'Organizational Environment' tends to have a statistically significant contribution to 'Entrepreneurial Orientation' in Model 1; while in Model 2, the two variables i.e., the 'Organizational Environment' and 'External Business Environment.' On the other hand, in BDU, 72.3% of the 'Entrepreneurial Orientation' variable's variance is explained by the 'Organizational environment'. These all means that when the other variables are allowed to account for whatever dependent variable variance they can, then in Model 1, the 'Organizational Environment' variable is likely to have a statistically significant prediction to the 'entrepreneurial Orientation', which can account for 72.93%. Finally, the variable 'performance' has no a backward predicting effect on entrepreneurial orientation in both case study universities.

#### **7.4 Recommendations of the Study**

This section concludes this research study with the set of recommendations for policy-makers across the board, be they governmental policy-makers; university leaders, practitioners and beneficiaries; the industry, and the civil society at large.

1. The findings on entrepreneurial orientation suggest that policy makers should work on how to devolve the admission, remuneration, and standardization of some centralized universities' activities. In addition, emphasis should be given for the

developments of: a) independent and autonomous actions; b) innovativeness as a central factor to characterize entrepreneurship; c) proper injection of a proactive entrepreneurial behavior in all spheres of the institutions to success in turbulent and rapid changing environments; d) sensitization of all on the possible competitions at national, regional and international levels; e) build up sense of outperforming from others; and f) for the attitudinal development towards risk-taking behaviors with the possible management of job-wise and intellectually security.

2. Evidence found in this study on the entrepreneurial performances suggests that the case study universities should work not only on strengthening in breadth and depth of the knowledge transfer approaches that tend to be practiced like research contracts and consultancy, collaborative research, external training, mobility programs for research staff, student placements in enterprises, technology centers, and cluster initiatives. This also indicates that they should be directed towards spin-offs, technology brokers, science parks, technology networks and venture capital funds. Besides, the case study universities should exert efforts to internationalize through their activities in teaching, research and knowledge exchange, and through their staff and students so that not to remain far behind of an entrepreneurial university. By doing so, the business dimension and internationalization abroad aspects are to be strengthened, as it is a vehicle for continuous change and advancement, and a means for generation of resources. Universities at hand ought to work also for the integration of entrepreneurship education, and therefore, entrepreneurial learning shall not be limited to some portion of students but to all without discrimination amid extending access for Arts, Humanities, and Science students as is the case for Business and Engineering ones. It is also better to have a diverse range of provisions including business plan competitions and extra-curricular activities that could add advantages of bringing the local business community into the educational environment. Further, it would be good if the helping hands of the case study universities are strengthened for those students and staff to be entrepreneurs through trainings for awareness; and arrangements for capital, collateral and credit issues.

3. If entrepreneurship is a basic value guiding what people are doing, a university is expected to experience entrepreneurial activities even in cases where supporting infrastructures, funding systems and the like may not be ideal for promoting entrepreneurship. The findings suggest that the case study universities shall not be limited with engaging in the softer entrepreneurial performances of producing skilled and qualified graduates', publishing, grantsmanship, consultancy, training and contract research rather, with increased scope and intensity of such measures, they should pay an immediate consideration towards Spin-off Venture Formation, and Establishment of Science and Technology Parks, with full energy though there may not be supportive environments.
4. Along with maintaining and strengthening the present entrepreneurial engagements, universities should make innovation and commercialization of parts of their essential agendas to stay economically healthy and to survive in the competitive environments. Moreover, the case study universities shall identify different strategies to generate new revenues that align with the institutional mission and culture and engender the support of institutional stakeholders. Universities should introduce or expand some of the quasi-market oriented insights such as privatization, outsourcing, private governmental partners and organizational entrepreneurship, besides accomplishing their missions.
5. The findings on the organizational environment suggest that the case universities should work to place prudence and more effective control systems that could leave maximum rooms for flexibility and agility to such extent that an entrepreneurial control system looks for. In addition, the organizational structures should be revisited in line with the requirements of entrepreneurial universities to the extent that may not be a hindrance or an impediment on the ability of those universities to be entrepreneurial; to the extent that they could serve as gatekeepers and boundary spanners in the technology transfer and commercialization of activities related to academic research undertaken by the respective universities; and to bring the new technologies to the market with emphasis on strong industry-university linkages. Further, universities should make efforts towards embracing entrepreneurship and to come about as a positive change to be welcomed, fostered and absorbed by stakeholders. Entrepreneurial ideas and the culture of

entrepreneurship had yet to be spread, inculcated and embodied among the university communities to the extent that could propel entrepreneurial activities across the dispersed units of both universities. University managers' disposition to put in place some rewards, create supportive organizational structures, demonstrate risk taking and tolerance behavior should be further strengthened, if the universities organizational environment is to be supportive enough for entrepreneurship. Moreover, the case universities should exert efforts to produce and ensure intellectual and visionary leadership who could remove barriers associated with the entrepreneurial paradigm; and to carry out entrepreneurial activities through the particular contexts, existing institutional culture, mission and strategies.

6. The results from the study with regards to external entrepreneurial environment show that the case universities should scan the external eco-system for organizational entrepreneurship, not only to appreciate the potential dynamism, hostility and heterogeneity but also to put in place systems like incubator organizations and institutions promoting entrepreneurship (i.e. technological parks). Universities be supposed to exploit the existing both munificent and hostile environments to increase their entrepreneurial activities and stimulate the pursuit of entrepreneurship. Nevertheless, as these could not go with reduced appetites of institutions rather through thinking and operating for strong entrepreneurial coping mechanisms and improving internal capabilities, government and industry shall provide observable supports along formation of positive attitudes among bureaucracy and society towards entrepreneurs, and creation of well-developed entrepreneurial-friendly climate, and even financing of entrepreneurial projects in universities.
7. The implications of the regression analysis on 'performance' suggest that AAU could be much beneficial from the strengthening of organizational environment, and it shall do a lot towards it for further improvement of the performance dimension; but for BDU, it is the entrepreneurial orientation that displays a greater impact on the institutional performance. On the other hand, the implications of the regression analysis on 'entrepreneurial orientation' suggest that BDU could be much beneficial from the

strengthening of organizational environment, and it shall do a lot towards it for further improvement of the entrepreneurial orientation dimension; of course, the impact of the organizational environment on the performance of AAU could not be undermined, and these call for both institutions to work towards the improvement of internal capabilities.

8. Finally, future research should be carried out to provide detailed treatments of each of these variables chosen for an examination of entrepreneurship in higher education namely, entrepreneurial orientation, organizational entrepreneurial environment, external entrepreneurial environment and entrepreneurial performances. Such research should look at both Ethiopian universities and universities abroad employing in cross-country comparative design and analysis.

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## APPENDIX

### Frequency Counts on Entrepreneurial Orientation Variable and Constructs

#### Autonomy

Items	University	Scale					Total
		To a Very Less Extent	To Some Extent	To a Mediu m Extent	To a Great Extent	To a Very Great Extent	
The freedom of the university to determine its entrepreneurial activities	AAU	7 18.4%	5 13.2%	7 18.4%	14 36.8%	5 13.2%	38 100.0%
	BDU	1 2.5%	2 5.0%	10 25.0%	50.0%	7 17.5%	40 100.0%
Financial autonomy: to attract additional funding, borrow and raise money and to invest in long term development independently	AAU	6 15.8%	9 23.7%	10 26.3%	11 28.9%	2 5.3%	38 100.0%
	BDU	2 5.0%	9 22.5%	8 20.0%	17 42.5%	4 10.0%	40 100.0%
Academic autonomy: to design new programmes or to terminate non-marketable ones	AAU	3 7.9%	7 18.4%	12 31.6%	9 23.7%	7 18.4%	38 100.0%
	BDU	2 5.0%	0 0.0%	5 12.5%	19 47.5%	14 35.0%	40 100.0%
Roles to drive projects forward with institutional effort and accountability to lead entrepreneurial projects towards success	AAU	6 15.8%	11 28.9%	9 23.7%	10 26.3%	2 5.3%	38 100.0%
	BDU	0 0.0%	5 12.5%	11 27.5%	18 45.0%	6 15.0%	40 100.0%
Autonomy to take independent actions towards staffing	AAU	4 10.5%	7 18.4%	11 28.9%	14 36.8%	2 5.3%	38 100.0%
	BDU	4 10.0%	5 12.5%	10 25.0%	15 37.5%	6 15.0%	40 100.0%
Institutional free will to support innovative and interdisciplinary entrepreneurial activities	AAU	6 15.8%	4 10.5%	14 36.8%	10 26.3%	4 10.5%	38 100.0%
	BDU	1 2.5%	6 15.0%	13 32.5%	15 37.5%	5 12.5%	40 100.0%
Institutional motivations to pursue new avenues in entrepreneurship	AAU	4 10.5%	9 23.7%	10 26.3%	12 31.6%	3 7.9%	38 100.0%
	BDU	0 0.0%	10 25.0%	14 35.0%	15 37.5%	1 2.5%	40 100.0%

## Innovativeness

Items	University	To a Very Less Extent	To Some Extent	To a Mediu m Extent	To a Great Extent	To a Very Great Extent	Total
		6	13	11	7	1	38
		15.8%	34.2%	28.9%	18.4%	2.6%	100.0%
	BDU	1	11	15	10	3	40
		2.5%	27.5%	37.5%	25.0%	7.5%	100.0%
The tendency for organisational innovativeness i.e., introduction of a new organisational structures, business practices, or external relations	AAU	5	11	11	8	3	38
		13.2%	28.9%	28.9%	21.1%	7.9%	100.0%
	BDU	0	7	14	17	2	40
		0.0%	17.5%	35.0%	42.5%	5.0%	100.0%
Willingness to depart from traditional practices, delivery methods, or venture/business undertakings	AAU	4	15	9	8	2	38
		10.5%	39.5%	23.7%	21.1%	5.3%	100.0%
	BDU	4	7	15	11	3	40
		10.0%	17.5%	37.5%	27.5%	7.5%	100.0%
Changes and adjustments on the focus of entrepreneurial activities over the last 5 years	AAU	5	14	7	9	3	38
		13.2%	36.8%	18.4%	23.7%	7.9%	100.0%
	BDU	0	11	20	9	0	40
		0.0%	27.5%	50.0%	22.5%	0.0%	100.0%
Preferences for newness and novelty in marketing, and organisational issues	AAU	5	12	13	5	3	38
		13.2%	31.6%	34.2%	13.2%	7.9%	100.0%
	BDU	2	10	20	6	2	40
		5.0%	25.0%	50.0%	15.0%	5.0%	100.0%
Institutional regard about innovativeness as compared to other public universities in the country	AAU	5	7	15	10	1	38
		13.2%	18.4%	39.5%	26.3%	2.6%	100.0%
	BDU	3	6	17	12	2	40
		7.5%	15.0%	42.5%	30.0%	5.0%	100.0%

## Proactiveness

Items	University	To a Very Less Extent	To Some Extent	To a Mediu m Extent	To a Great Extent	To a Very Great Extent	Total
		7	10	13	5	3	38
		18.4%	26.3%	34.2%	13.2%	7.9%	100.0%
	BDU	4	9	11	15	1	40
Fore-ward looking behaviors to take active measures in the relevant entrepreneurial fields	AAU	10.0%	22.5%	27.5%	37.5%	2.5%	100.0%
		3	14	12	8	1	38
	BDU	2	7	17	12	2	40
		5.0%	17.5%	42.5%	30.0%	5.0%	100.0%
Foresight to seize opportunities in anticipation of future needs of clients	AAU	6	13	10	6	3	38
		15.8%	34.2%	26.3%	15.8%	7.9%	100.0%
	BDU	2	13	11	10	4	40
		5.0%	32.5%	27.5%	25.0%	10.0%	100.0%
Alignment of university entrepreneurial efforts to the anticipated needs	AAU	7	12	11	7	1	38
		18.4%	31.6%	28.9%	18.4%	2.6%	100.0%
	BDU	1	13	14	10	2	40
		2.5%	32.5%	35.0%	25.0%	5.0%	100.0%
Incorporating of new discoveries from outside to own programs	AAU	5	14	13	4	2	38
		13.2%	36.8%	34.2%	10.5%	5.3%	100.0%
	BDU	4	11	19	5	1	40
		10.0%	27.5%	47.5%	12.5%	2.5%	100.0%
Presentations and discussions of entrepreneurial results rapidly and eagerness for feedbacks	AAU	8	13	13	3	1	38
		21.1%	34.2%	34.2%	7.9%	2.6%	100.0%
	BDU	5	15	13	4	3	40
		12.5%	37.5%	32.5%	10.0%	7.5%	100.0%
Dissemination of own university knowledge to internal and external consumers	AAU	5	11	19	3	0	38
		13.2%	28.9%	50.0%	7.9%	0.0%	100.0%
	BDU	3	10	14	9	4	40
		7.5%	25.0%	35.0%	22.5%	10.0%	100.0%

## Competitive Aggressiveness

Items	University	To a Very Less Extent	To Some Extent	To a Mediu m Extent	To a Great Extent	To a Very Great Extent	Total
		2	11	13	9	3	38
		5.3%	28.9%	34.2%	23.7%	7.9%	100.0%
		1	11	15	13	0	40
	BDU	2.5%	27.5%	37.5%	32.5%	0.0%	100.0%
Efforts to become one of the quality entrepreneurial universities	AAU	3	9	11	11	4	38
		7.9%	23.7%	28.9%	28.9%	10.5%	100.0%
	BDU	0	10	9	16	5	40
		0.0%	25.0%	22.5%	40.0%	12.5%	100.0%
Surprising the competitors by making changes in strategy, programs, discoveries, products or technologies	AAU	7	9	17	4	1	38
		18.4%	23.7%	44.7%	10.5%	2.6%	100.0%
	BDU	1	14	17	8	0	40
		2.5%	35.0%	42.5%	20.0%	0.0%	100.0%
Critical observations to entrepreneurial activities of other institutes and trying to position own activities relative to them	AAU	6	8	19	3	2	38
		15.8%	21.1%	50.0%	7.9%	5.3%	100.0%
	BDU	4	10	19	5	2	40
		10.0%	25.0%	47.5%	12.5%	5.0%	100.0%
Volume/intensity of competitive activity/events carried out in a given year to get positions in national, regional or global university	AAU	5	13	13	6	1	38
		13.2%	34.2%	34.2%	15.8%	2.6%	100.0%
	BDU	3	9	15	11	2	40
		7.5%	22.5%	37.5%	27.5%	5.0%	100.0%
Sequence and range of competitive actions on multiple fronts (e.g., in terms of criteria or levels of competition)	AAU	7	11	15	4	1	38
		18.4%	28.9%	39.5%	10.5%	2.6%	100.0%
	BDU	4	13	13	9	1	40
		10.0%	32.5%	32.5%	22.5%	2.5%	100.0%

## Risk-taking

Items	University	To a Very Less Extent	To Some Extent	To a Mediu m Extent	To a Great Extent	To a Very Great Extent	Total
Commitments of resources to projects where the outcome might be groundbreaking, however, the probability of success is low	AAU	11 28.9%	12 31.6%	7 18.4%	7 18.4%	1 2.6%	38 100.0%
	BDU	3 7.5%	8 20.0%	15 37.5%	9 22.5%	5 12.5%	40 100.0%
Business risk taking: observed with entry of the new market prior to testing or using untested technology,	AAU	9 23.7%	13 34.2%	9 23.7%	7 18.4%	0 0.0%	38 100.0%
	BDU	1 2.5%	16 40.0%	9 22.5%	11 27.5%	3 7.5%	40 100.0%
Consideration of the term “risk taker” as a positive attribute for people in the university	AAU	10 26.3%	11 28.9%	11 28.9%	5 13.2%	1 2.6%	38 100.0%
	BDU	2 5.0%	14 35.0%	13 32.5%	7 17.5%	4 10.0%	40 100.0%
Prevalence of risk-friendly approaches towards entrepreneurship in the university and committing resources	AAU	9 23.7%	9 23.7%	13 34.2%	6 15.8%	1 2.6%	38 100.0%
	BDU	2 5.0%	12 30.0%	15 37.5%	10 25.0%	1 2.5%	40 100.0%
Eagerness to exploit new entrepreneurial opportunities and methods even though with a probable of failure	AAU	6 15.8%	14 36.8%	9 23.7%	7 18.4%	2 5.3%	38 100.0%
	BDU	3 7.5%	9 22.5%	18 45.0%	6 15.0%	4 10.0%	40 100.0%

## Frequency Counts on Organizational Environment Variable and Constructs

### Control Systems

Items	University	Scale					Total
		To a Very Less Extent	To Some Extent	To a Medium Extent	To a Great Extent	To a Very Great Extent	
Tightness of budgetary controls	AAU	10 26.3%	13 34.2%	7 18.4%	6 15.8%	2 5.3%	38 100.0%
	BDU	8 20.0%	11 27.5%	14 35.0%	6 15.0%	1 2.5%	40 100.0%
Claims for expenses in doing R&D go through strict control process.	AAU	5 13.2%	14 36.8%	9 23.7%	7 18.4%	3 7.9%	38 100.0%
	BDU	4 10.0%	18 45.0%	11 27.5%	7 17.5%	0 0.0%	40 100.0%
Difficulty to reverse budgets for R&D after once accepted	AAU	2 5.3%	14 36.8%	10 26.3%	8 21.1%	4 10.5%	38 100.0%
	BDU	7 17.5%	9 22.5%	13 32.5%	8 20.0%	3 7.5%	40 100.0%
Degree of discretion to academicians in how they do their jobs.	AAU	4 10.5%	8 21.1%	17 44.7%	8 21.1%	1 2.6%	38 100.0%
	BDU	2 5.0%	6 15.0%	17 42.5%	14 35.0%	1 2.5%	40 100.0%
Degree of trust to academicians by the management when it comes to using organizational resources.	AAU	5 13.2%	12 31.6%	12 31.6%	9 23.7%	0 0.0%	38 100.0%
	BDU	3 7.5%	6 15.0%	15 37.5%	14 35.0%	2 5.0%	40 100.0%
The clarity of the lines of command to allocate authority to each faculty/school or department.	AAU	5 13.2%	10 26.3%	10 26.3%	11 28.9%	2 5.3%	38 100.0%
	BDU	3 7.5%	7 17.5%	11 27.5%	16 40.0%	3 7.5%	40 100.0%
Variety of options for individuals in the university to get financial support for innovative projects.	AAU	8 21.1%	14 36.8%	9 23.7%	7 18.4%	0 0.0%	38 100.0%
	BDU	5 12.5%	11 27.5%	17 42.5%	6 15.0%	1 2.5%	40 100.0%
Openness of the university environment to encourage people to talk openly with others	AAU	5 13.2%	7 18.4%	13 34.2%	12 31.6%	1 2.6%	38 100.0%
	BDU	2 5.0%	7 17.5%	10 25.0%	15 37.5%	6 15.0%	40 100.0%

## Organizational Structure

Items	University	To a Very Less Extent	To Some Extent	To a Medium Extent	To a Great Extent	To a Very Great Extent	Total
The nature of the organizational structure of the university to facilitate open communication flow.	AAU	8 21.1%	12 31.6%	8 21.1%	9 23.7%	1 2.6%	38 100.0%
	BDU	1 2.5%	5 12.5%	17 42.5%	16 40.0%	1 2.5%	40 100.0%
The complexity of the bureaucratic structure to take away your ability to be entrepreneurial	AAU	10 26.3%	10 26.3%	9 23.7%	6 15.8%	3 7.9%	38 100.0%
	BDU	5 12.5%	9 22.5%	14 35.0%	10 25.0%	2 5.0%	40 100.0%
Convenience of the way the university system is organized to independently manage entrepreneurial projects.	AAU	8 21.1%	14 36.8%	11 28.9%	5 13.2%	0 0.0%	38 100.0%
	BDU	4 10.0%	6 15.0%	19 47.5%	10 25.0%	1 2.5%	40 100.0%
Flexibility of the organizational structure of the university	AAU	13 34.2%	13 34.2%	8 21.1%	4 10.5%	0 0.0%	38 100.0%
	BDU	4 10.0%	10 25.0%	15 37.5%	10 25.0%	1 2.5%	40 100.0%
Rigidity of the chain of command to the extent of limiting your ability to experiment with new ideas	AAU	6 15.8%	7 18.4%	11 28.9%	13 34.2%	1 2.6%	38 100.0%
	BDU	3 7.5%	11 27.5%	13 32.5%	12 30.0%	1 2.5%	40 100.0%
Practices in delegating decision-making responsibilities.	AAU	3 7.9%	10 26.3%	13 34.2%	12 31.6%	0 0.0%	38 100.0%
	BDU	3 7.5%	8 20.0%	15 37.5%	10 25.0%	4 10.0%	40 100.0%
The organizational structure is clearly defined	AAU	5 13.2%	9 23.7%	13 34.2%	9 23.7%	2 5.3%	38 100.0%
	BDU	3 7.5%	8 20.0%	14 35.0%	13 32.5%	2 5.0%	40 100.0%

## Human Resource Management Systems

Items	University	To a Very Less Extent	To a Some Extent	To a Medium Extent	To a Great Extent	To a Very Great Extent	Total
Incentives packages for innovative activities	AAU	10 26.3%	15 39.5%	7 18.4%	6 15.8%	0 0.0%	38 100.0%
	BDU	7 17.5%	13 32.5%	14 35.0%	5 12.5%	1 2.5%	40 100.0%
Reward systems for academicians who take calculated risks.	AAU	12 31.6%	16 42.1%	7 18.4%	3 7.9%	0 0.0%	38 100.0%
	BDU	9 22.5%	11 27.5%	12 30.0%	6 15.0%	2 5.0%	40 100.0%
Definition of jobs with considerable discretion in how tasks are performed.	AAU	7 18.4%	14 36.8%	13 34.2%	4 10.5%	0 0.0%	38 100.0%
	BDU	5 12.5%	11 27.5%	17 42.5%	6 15.0%	1 2.5%	40 100.0%
Range of career paths which can be pursued by academicians.	AAU	5 13.2%	14 36.8%	12 31.6%	7 18.4%	0 0.0%	38 100.0%
	BDU	5 12.5%	7 17.5%	16 40.0%	9 22.5%	3 7.5%	40 100.0%
Continuous Professional Development (CPD) packages to support the creative potential of academicians.	AAU	7 18.4%	14 36.8%	12 31.6%	5 13.2%	0 0.0%	38 100.0%
	BDU	4 10.0%	11 27.5%	11 27.5%	11 27.5%	3 7.5%	40 100.0%
Inclusion of employee innovativeness in the annual performance appraisals and evaluations.	AAU	9 23.7%	16 42.1%	10 26.3%	3 7.9%	0 0.0%	38 100.0%
	BDU	3 7.5%	13 32.5%	15 37.5%	6 15.0%	3 7.5%	40 100.0%
The balance between incentives for individual and team initiatives.	AAU	13 34.2%	11 28.9%	11 28.9%	3 7.9%	0 0.0%	38 100.0%
	BDU	6 15.0%	17 42.5%	11 27.5%	3 7.5%	3 7.5%	40 100.0%

## Leadership Behavior

Items	University	To a Very Less Extent	To a Very Great Extent	To Some Extent	To a Medium Extent	To a Great Extent	To a Very Great Extent	Total
Giving free time to employees with a good idea to develop that idea.	AAU	13 34.2%	9 23.7%	13 34.2%	3 7.9%	0 0.0%	38 100.0%	
	BDU	6 15.0%	10 25.0%	14 35.0%	7 17.5%	3 7.5%	40 100.0%	
Opportunity for employees to say a lot on how things are done.	AAU	11 28.9%	8 21.1%	15 39.5%	4 10.5%	0 0.0%	38 100.0%	
	BDU	3 7.5%	17 42.5%	10 25.0%	8 20.0%	2 5.0%	40 100.0%	
Availability of a culture that rewards tested ideas.	AAU	11 28.9%	14 36.8%	12 31.6%	1 2.6%	0 0.0%	38 100.0%	
	BDU	3 7.5%	16 40.0%	11 27.5%	7 17.5%	3 7.5%	40 100.0%	
Celebration of innovative achievements.	AAU	12 31.6%	12 31.6%	9 23.7%	5 13.2%	0 0.0%	38 100.0%	
	BDU	2 5.0%	15 37.5%	11 27.5%	7 17.5%	5 12.5%	40 100.0%	
Prevalence of a culture that discourages failure	AAU	5 13.2%	13 34.2%	15 39.5%	2 5.3%	3 7.9%	38 100.0%	
	BDU	3 7.5%	7 17.5%	17 42.5%	11 27.5%	2 5.0%	40 100.0%	
Sense of urgency regarding the importance of innovation.	AAU	11 28.9%	15 39.5%	8 21.1%	4 10.5%	0 0.0%	38 100.0%	
	BDU	4 10.0%	12 30.0%	11 27.5%	10 25.0%	3 7.5%	40 100.0%	
Speed of go/no go decisions from the management to whatever new ideas	AAU	15 39.5%	10 26.3%	9 23.7%	4 10.5%	0 0.0%	38 100.0%	
	BDU	4 10.0%	12 30.0%	12 30.0%	9 22.5%	3 7.5%	40 100.0%	
Supports to small experimental projects even though some may eventually fail	AAU	13 34.2%	14 36.8%	5 13.2%	6 15.8%	0 0.0%	38 100.0%	
	BDU	5 12.5%	8 20.0%	15 37.5%	10 25.0%	2 5.0%	40 100.0%	

## Entrepreneurial Culture

Items	University	To a Very Less Extent	To Some Extent	To a Medium Extent	To a Great Extent	To a Very Great Extent	Total
Encouragement to the bending of rules when they get in the way of achieving strategic initiatives.	AAU	11 28.9%	12 31.6%	12 31.6%	3 7.9%	0 0.0%	38 100.0%
	BDU	5 12.5%	8 20.0%	15 37.5%	11 27.5%	1 2.5%	40 100.0%
Willingness to move ahead with a promising new approach when others might hold back.	AAU	6 15.8%	15 39.5%	10 26.3%	6 15.8%	1 2.6%	38 100.0%
	BDU	2 5.0%	9 22.5%	21 52.5%	8 20.0%	0 0.0%	40 100.0%
Overall encouragements in the university to outwit/outsmart bureaucracy.	AAU	13 34.2%	10 26.3%	9 23.7%	5 13.2%	1 2.6%	38 100.0%
	BDU	4 10.0%	9 22.5%	18 45.0%	7 17.5%	2 5.0%	40 100.0%
Flexibility to utilize different approaches to overcome obstacles whenever the initial one does not work.	AAU	5 13.2%	19 50.0%	7 18.4%	7 18.4%	0 0.0%	38 100.0%
	BDU	3 7.5%	9 22.5%	16 40.0%	10 25.0%	2 5.0%	40 100.0%
Fight against the encroachment of bureaucracy in the university.	AAU	6 15.8%	17 44.7%	10 26.3%	4 10.5%	1 2.6%	38 100.0%
	BDU	4 10.0%	8 20.0%	17 42.5%	10 25.0%	1 2.5%	40 100.0%
Willingness to listen to suggestions from others about how to do things differently	AAU	5 13.2%	17 44.7%	8 21.1%	7 18.4%	1 2.6%	38 100.0%
	BDU	1 2.5%	16 40.0%	11 27.5%	11 27.5%	1 2.5%	40 100.0%

## Frequency Counts on External Environment Variable and Constructs

### Dynamism

Items	University	Scale					Total
		To a Very Less Extent	To Some Extent	To a Medium Extent	To a Great Extent	To a Very Great Extent	
The need in your university to change its marketing practices too frequently to keep up with the market and competitors.	AAU	4 10.5%	10 26.3%	11 28.9%	11 28.9%	2 5.3%	38 100.0%
	BDU	4 10.0%	10 25.0%	15 37.5%	10 25.0%	1 2.5%	40 100.0%
The rate at which products/services are getting obsolete in the university	AAU	2 5.3%	13 34.2%	9 23.7%	12 31.6%	2 5.3%	38 100.0%
	BDU	3 7.5%	12 30.0%	17 42.5%	6 15.0%	2 5.0%	40 100.0%
The unpredictability of the actions of competitors.	AAU	7 18.4%	7 18.4%	18 47.4%	6 15.8%	0 0.0%	38 100.0%
	BDU	3 7.5%	12 30.0%	17 42.5%	7 17.5%	1 2.5%	40 100.0%
The unpredictability of demand and consumer tastes	AAU	2 5.3%	10 26.3%	19 50.0%	6 15.8%	1 2.6%	38 100.0%
	BDU	3 7.5%	11 27.5%	17 42.5%	8 20.0%	1 2.5%	40 100.0%
The organizational capacity of the university to cope up with the changes in production/service technologies.	AAU	4 10.5%	11 28.9%	14 36.8%	9 23.7%	0 0.0%	38 100.0%
	BDU	5 12.5%	9 22.5%	16 40.0%	10 25.0%	0 0.0%	40 100.0%

## Hostility

Items	University	To a Very Less Extent	To Some Extent	To a Medium Extent	To a Great Extent	To a Very Great Extent	Total
The degree of threat from the environment to institutional survival.	AAU	8 21.1%	11 28.9%	12 31.6%	5 13.2%	2 5.3%	38 100.0%
	BDU	8 20.0%	8 20.0%	17 42.5%	5 12.5%	2 5.0%	40 100.0%
Toughness of competitions (e.g., either with private HEIs or the public ones such as rankings, tuition fee other than to the regular under-graduates, etc...)	AAU	6 15.8%	12 31.6%	15 39.5%	3 7.9%	2 5.3%	38 100.0%
	BDU	7 17.5%	8 20.0%	14 35.0%	11 27.5%	0 0.0%	40 100.0%
Severity of competition in product quality or novelty	AAU	6 15.8%	16 42.1%	13 34.2%	1 2.6%	2 5.3%	38 100.0%
	BDU	6 15.0%	10 25.0%	15 37.5%	8 20.0%	1 2.5%	40 100.0%
Degree of dwindling of markets for graduates	AAU	1 2.6%	11 28.9%	19 50.0%	5 13.2%	2 5.3%	38 100.0%
	BDU	5 12.5%	7 17.5%	19 47.5%	5 12.5%	4 10.0%	40 100.0%
Scarcity of labor and material resources	AAU	5 13.2%	6 15.8%	15 39.5%	9 23.7%	3 7.9%	38 100.0%
	BDU	5 12.5%	16 40.0%	10 25.0%	7 17.5%	2 5.0%	40 100.0%

## Heterogeneity

Items	University	To a Very Less Extent	To Some Extent	To a Medium Extent	To a Great Extent	To a Very Great Extent	Total
Challenging nature of the government intervention	AAU	0 0.0%	11 28.9%	13 34.2%	6 15.8%	8 21.1%	38 100.0%
	BDU	6 15.0%	10 25.0%	10 25.0%	8 20.0%	6 15.0%	40 100.0%
Diversification of the business and industrial environment in which the university operates	AAU	3 7.9%	8 21.1%	18 47.4%	7 18.4%	2 5.3%	38 100.0%
	BDU	3 7.5%	10 25.0%	15 37.5%	10 25.0%	2 5.0%	40 100.0%
Horizons of the competition that the university shall win	AAU	2 5.3%	6 15.8%	19 50.0%	10 26.3%	1 2.6%	38 100.0%
	BDU	2 5.0%	11 27.5%	18 45.0%	7 17.5%	2 5.0%	40 100.0%
Diversified nature of the competition	AAU	3 7.9%	8 21.1%	21 55.3%	6 15.8%	0 0.0%	38 100.0%
	BDU	2 5.0%	12 30.0%	18 45.0%	5 12.5%	3 7.5%	40 100.0%
Market dynamism and uncertainty	AAU	2 5.3%	11 28.9%	17 44.7%	7 18.4%	1 2.6%	38 100.0%
	BDU	5 12.5%	6 15.0%	16 40.0%	11 27.5%	2 5.0%	40 100.0%

Table IV

## Frequency Counts on Entrepreneurial Performance Variable and Constructs

### Knowledge/Technology Transfer

Our University	Items	University	Scale					Total
			To a Very Less Extent	To Some Extent	To a Medium Extent	To a Great Extent	To a Very Great Extent	
	...has committed to knowledge exchange with industry, society and the public sector with provisions of clear policy guidance on how relationships can be formed and	AAU	3 7.9%	7 18.4%	11 28.9%	16 42.1%	1 2.6%	38 100.0%
	...has involved in partnerships and relationships with regional and local organizations, Small and Medium Enterprises (SMEs), schools, TVET colleges, alumni and entrepreneurs	BDU	2 5.0%	9 22.5%	15 37.5%	13 32.5%	1 2.5%	40 100.0%
	...has maintained linkage with incubators, science parks and other external initiatives to create opportunities for dynamic knowledge exchange in both directions.	AAU	2 5.3%	9 23.7%	13 34.2%	14 36.8%	0 0.0%	38 100.0%
	...has set support mechanisms for staff and students in knowledge exchange and collaboration with the external environment through formal or informal business/external entrepreneurial	BDU	2 5.0%	8 20.0%	15 37.5%	12 30.0%	3 7.5%	40 100.0%
	...has put support systems to staff and student mobility between academia and the external environment such as internships, teaching and research exchanges etc...	AAU	5 13.2%	12 31.6%	13 34.2%	8 21.1%	0 0.0%	38 100.0%
	...has increased the use of knowledge created and co-created by research, industry, entrepreneurs and the wider community through the form of commercial and industrial partners	BDU	2 5.0%	13 32.5%	18 45.0%	5 12.5%	2 5.0%	40 100.0%
	...has conducted the gathering and using of knowledge such as timely and quality market research, new advisory groups, or trend reports for decision-making	AAU	3 7.9%	11 28.9%	16 42.1%	8 21.1%	0 0.0%	38 100.0%
	...has an increased engagement in scientific research for local economic development.	BDU	1 2.5%	14 35.0%	13 32.5%	11 27.5%	1 2.5%	40 100.0%
	...has increased the amount of spending on Research and Development	AAU	4 10.5%	9 22.5%	17 44.7%	8 21.1%	0 0.0%	38 100.0%
	...has established technology transfer offices to market faculties' inventions.	BDU	2 5.0%	11 27.5%	13 32.5%	11 27.5%	3 7.5%	40 100.0%
		AAU	4 10.5%	11 28.9%	17 44.7%	5 13.2%	1 2.6%	38 100.0%
		BDU	2 5.0%	11 27.5%	17 42.5%	9 22.5%	1 2.5%	40 100.0%
		AAU	4 10.5%	11 28.9%	17 44.7%	5 13.2%	1 2.6%	38 100.0%
		BDU	1 2.5%	18 45.0%	13 32.5%	5 12.5%	3 7.5%	40 100.0%
		AAU	3 7.9%	8 21.1%	16 42.1%	11 28.9%	0 0.0%	38 100.0%
		BDU	0 0.0%	11 27.5%	17 42.5%	8 20.0%	4 10.0%	40 100.0%
		AAU	4 10.5%	10 26.3%	15 39.5%	8 21.1%	1 2.6%	38 100.0%
		BDU	1 2.5%	4 10.0%	14 35.0%	17 42.5%	4 10.0%	40 100.0%
		AAU	1 2.6%	9 23.7%	14 36.8%	10 26.3%	4 10.5%	38 100.0%
		BDU	0 0.0%	10 25.0%	14 35.0%	9 22.5%	7 17.5%	40 100.0%

## Internationalization

Items	University	To a Very Less Extent	To Some Extent	To a Medium Extent	To a Great Extent	To a Very Great Extent	Total
...has integrated internationalization as a key part of the university's entrepreneurial strategy	AAU	5 13.2%	7 18.4%	15 39.5%	11 28.9%	0 0.0%	38 100.0%
	BDU	2 5.0%	11 27.5%	14 35.0%	12 30.0%	1 2.5%	40 100.0%
...has expanded its international operations through strategic alliances and partners	AAU	4 10.5%	11 28.9%	10 26.3%	13 34.2%	0 0.0%	38 100.0%
	BDU	5 12.5%	10 25.0%	13 32.5%	11 27.5%	1 2.5%	40 100.0%
...has increased international institutional agreements	AAU	2 5.3%	8 21.1%	14 36.8%	12 31.6%	2 5.3%	38 100.0%
	BDU	2 5.0%	10 25.0%	12 30.0%	14 35.0%	2 5.0%	40 100.0%
...has increased international research collaboration and partnerships	AAU	1 2.6%	10 26.3%	11 28.9%	16 42.1%	0 0.0%	38 100.0%
	BDU	1 2.5%	11 27.5%	15 37.5%	11 27.5%	2 5.0%	40 100.0%
...has increased use of visiting scholars	AAU	3 7.9%	8 21.1%	15 39.5%	10 26.3%	2 5.3%	38 100.0%
	BDU	2 5.0%	13 32.5%	17 42.5%	5 12.5%	2 5.0%	40 100.0%
...has increased international development projects	AAU	2 5.3%	13 34.2%	11 28.9%	11 28.9%	1 2.6%	38 100.0%
	BDU	2 5.0%	16 40.0%	13 32.5%	6 15.0%	3 7.5%	40 100.0%
...has organized joint extra-curriculum activities	AAU	4 10.5%	11 28.9%	13 34.2%	9 23.7%	1 2.6%	38 100.0%
	BDU	1 2.5%	13 32.5%	17 42.5%	7 17.5%	2 5.0%	40 100.0%
...has looking for overseas campuses	AAU	7 18.4%	14 36.8%	11 28.9%	6 15.8%	0 0.0%	38 100.0%
	BDU	7 17.5%	8 20.0%	15 37.5%	9 22.5%	1 2.5%	40 100.0%
...has developed international networks for teaching, learning and research agendas	AAU	2 5.3%	9 23.7%	15 39.5%	8 21.1%	4 10.5%	38 100.0%
	BDU	6 15.0%	8 20.0%	16 40.0%	9 22.5%	1 2.5%	40 100.0%
...has increased the attraction of international faculty to the university	AAU	2 5.3%	9 23.7%	18 47.4%	5 13.2%	4 10.5%	38 100.0%
	BDU	7 17.5%	12 30.0%	12 30.0%	6 15.0%	3 7.5%	40 100.0%
...has international fee paying student recruitment	AAU	8 21.1%	13 34.2%	14 36.8%	3 7.9%	0 0.0%	38 100.0%
	BDU	11 27.5%	17 42.5%	9 22.5%	2 5.0%	1 2.5%	40 100.0%
...has introduced distance and e-learning services abroad	AAU	10 26.3%	7 18.4%	16 42.1%	5 13.2%	0 0.0%	38 100.0%

	BDU	14	16	6	2	2	40
		35.0%	40.0%	15.0%	5.0%	5.0%	100.0%
...has increased use of international cultural dimensions in curriculum	AAU	8	9	13	7	1	38
		21.1%	23.7%	34.2%	18.4%	2.6%	100.0%
...has an arrangement for the international mobility of university staff through exchange schemes, scholarships, etc...	BDU	6	18	8	8	0	40
		15.0%	45.0%	20.0%	20.0%	0.0%	100.0%
	AAU	5	11	13	8	1	38
		13.2%	28.9%	34.2%	21.1%	2.6%	100.0%
	BDU	7	13	12	8	0	40
		17.5%	32.5%	30.0%	20.0%	0.0%	100.0%
...has increased packages of mobility/exchanges for students	AAU	5	14	11	8	0	38
		13.2%	36.8%	28.9%	21.1%	0.0%	100.0%
	BDU	7	16	14	3	0	40
		17.5%	40.0%	35.0%	7.5%	0.0%	100.0%
...has maximizing learning exchanges between national and international students	AAU	5	12	14	6	1	38
		13.2%	31.6%	36.8%	15.8%	2.6%	100.0%
	BDU	10	12	14	4	0	40
		25.0%	30.0%	35.0%	10.0%	0.0%	100.0%

## Entrepreneurship Education

Items	University	To a Very Less Extent	To Some Extent	To a Medium Extent	To a Great Extent	To a Very Great Extent	Total
...has created structures/ posts for entrepreneurship to stimulate and support for the development of entrepreneurial mindsets and skills among students	AAU	3	9	14	10	2	38
		7.9%	23.7%	36.8%	26.3%	5.3%	100.0%
	BDU	7	7	19	7	0	40
		17.5%	17.5%	47.5%	17.5%	0.0%	100.0%
...has increased the breadth and depth of education ABOUT entrepreneurship	AAU	1	10	14	12	1	38
		2.6%	26.3%	36.8%	31.6%	2.6%	100.0%
	BDU	2	15	17	5	1	40
		5.0%	37.5%	42.5%	12.5%	2.5%	100.0%
...has increased the breadth and depth of education FOR/IN entrepreneurship	AAU	1	8	20	8	1	38
		2.6%	21.1%	52.6%	21.1%	2.6%	100.0%
	BDU	3	12	20	4	1	40
		7.5%	30.0%	50.0%	10.0%	2.5%	100.0%
...has increased efforts towards producing job-creators than job-seekers	AAU	3	10	20	5	0	38
		7.9%	26.3%	52.6%	13.2%	0.0%	100.0%
	BDU	5	13	15	5	2	40
		12.5%	32.5%	37.5%	12.5%	5.0%	100.0%

...has increased use of a range of entrepreneurial approaches to teaching in all departments promoting diversity and innovation among students	AAU	2	12	13	11	0	38
		5.3%	31.6%	34.2%	28.9%	0.0%	100.0%
BDU		3	19	11	6	1	40
		7.5%	47.5%	27.5%	15.0%	2.5%	100.0%
...has increased supports to the maturity of entrepreneurial behavior among students through the teaching/learning opportunities and extra-curricular activities	AAU	2	9	20	7	0	38
		5.3%	23.7%	52.6%	18.4%	0.0%	100.0%
BDU		3	15	12	10	0	40
		7.5%	37.5%	30.0%	25.0%	0.0%	100.0%
...has increased the involvement of individuals from outside academia, such as guest lecturers or alumni with entrepreneurial attitudes, behaviors and experiences	AAU	3	9	18	8	0	38
		7.9%	23.7%	47.4%	21.1%	0.0%	100.0%
BDU		5	8	16	10	1	40
		12.5%	20.0%	40.0%	25.0%	2.5%	100.0%
...has attempted the validation of the entrepreneurship learning outcomes and updated processes of entrepreneurial course content.	AAU	2	12	18	6	0	38
		5.3%	31.6%	47.4%	15.8%	0.0%	100.0%
BDU		3	15	13	7	2	40
		7.5%	37.5%	32.5%	17.5%	5.0%	100.0%
...has increased collaborations and partnerships with communities, local organizations, local government, chambers of commerce and alumni as a key component of entrepreneurial teaching and learning development in the University	AAU	4	9	17	8	0	38
		10.5%	23.7%	44.7%	21.1%	0.0%	100.0%
BDU		3	10	18	7	2	40
		7.5%	25.0%	45.0%	17.5%	5.0%	100.0%
...has attempts on integration of research results into entrepreneurship education and training to keep the curriculum up-to-date with recent research findings and to encourage the internal exchange of knowledge.	AAU	3	14	13	8	0	38
		7.9%	36.8%	34.2%	21.1%	0.0%	100.0%
BDU		2	14	14	9	1	40
		5.0%	35.0%	35.0%	22.5%	2.5%	100.0%

### Pathways for Entrepreneurs

Items	University	To a Very Less Extent	To Some Extent	To a Medium Extent	To a Great Extent	To a Very Great Extent	Total
...has embedded awareness raising practices on the value/importance of developing entrepreneurial abilities amongst staff and students of the university	AAU	3	8	17	10	0	38
		7.9%	21.1%	44.7%	26.3%	0.0%	100.0%
BDU		1	13	18	7	1	40
		2.5%	32.5%	45.0%	17.5%	2.5%	100.0%
...has increased encouragement of staff and students to develop entrepreneurial mindsets, behavior and skills through a range of tailored mechanisms	AAU	3	9	20	4	1	38
		7.9%	23.7%	52.6%	10.5%	2.6%	100.0%
BDU		3	13	16	6	2	40
		7.5%	32.5%	40.0%	15.0%	5.0%	100.0%
...has provided opportunities to staff and students to experience entrepreneurship through exposing to	AAU	5	12	17	3	1	38
		13.2%	31.6%	44.7%	7.9%	2.6%	100.0%

environments in which they are more likely to encounter challenges for the development of entrepreneurial skills.	BDU	3	11	16	10	0	40
		7.5%	27.5%	40.0%	25.0%	0.0%	100.0%
...has increased support for creative and innovative individuals and groups from the pre start-up phase through to the growth phase of business development	AAU	6	12	13	6	1	38
		15.8%	31.6%	34.2%	15.8%	2.6%	100.0%
	BDU	3	12	14	10	1	40
		7.5%	30.0%	35.0%	25.0%	2.5%	100.0%
...has an increased mentoring service to both student and graduate entrepreneurs by using educators with entrepreneurship experience, dedicated business coaches, or alumni.	AAU	5	12	14	6	1	38
		13.2%	31.6%	36.8%	15.8%	2.6%	100.0%
	BDU	6	11	12	11	0	40
		15.0%	27.5%	30.0%	27.5%	0.0%	100.0%
...has provisions to private financing for the university's potential/ nascent/ budding entrepreneurial staff, students and graduates	AAU	7	18	11	1	1	38
		18.4%	47.4%	28.9%	2.6%	2.6%	100.0%
	BDU	4	14	13	9	0	40
		10.0%	35.0%	32.5%	22.5%	0.0%	100.0%
...has arrangements to business incubation facilities such as services of laboratories, research facilities, IT, coaching, etc	AAU	7	11	13	6	1	38
		18.4%	28.9%	34.2%	15.8%	2.6%	100.0%
	BDU	1	10	14	15	0	40
		2.5%	25.0%	35.0%	37.5%	0.0%	100.0%

## Univariate Statistics to Detect Missing Data

Univariate Statistics

	N	Mean	Std. Deviation	Missing		No. of Extremes <sup>a</sup>	
				Count	Percent	Low	High
autonomy	78	3.3120	.89142	0	.0	0	0
Innovation	78	2.9377	.83762	0	.0	0	0
Proactiveness	78	2.7582	.85786	0	.0	0	0
Competitive aggressiveness	78	2.8483	.85330	0	.0	0	0
Risk Taking	78	2.7154	1.00777	0	.0	0	0
Control Systems	78	2.8253	.55841	0	.0	1	0
Organizational Structure	78	2.8040	.67483	0	.0	0	0
HRM	78	2.4908	.86318	0	.0	0	0
Entrepreneurial Culture	78	2.5449	.89935	0	.0	0	0
Leadership Behavior	78	2.6410	.89252	0	.0	0	0
Environmental Dynamism	78	2.8103	.72355	0	.0	0	0
Environmental Hostility	78	2.7628	.70328	0	.0	1	1
Environmental Heterogeneity	78	2.9135	.79449	0	.0	1	0
Knowledge Transfer	78	2.9603	.71083	0	.0	0	0
Entrepreneurship Education	78	2.7859	.71491	0	.0	2	0
Pathways for entrepreneurs	78	2.7289	.77346	0	.0	0	1
Internationalization	78	2.7396	.82753	0	.0	0	0

a. Number of cases outside the range (Q1 - 1.5\*IQR, Q3 + 1.5\*IQR).

## Z-Standard Scores of each Variable and Constructs

Variable	Construct	Z-standard scores in range	
		From	To
Entrepreneurial Orientation	Autonomy	-2.5937	1.8934
	Innovativeness	-2.31337	2.29150
	Proactiveness	-2.04958	2.28015
	Competitive Aggressiveness	-2.16604	2.32630
	Risk-taking	-1.70216	2.26700
Organizational/ Internal Entrepreneurial Environment	Control Systems	-2.59721	1.87975
	Organizational Structure	-2.24912	2.19564
	HRM	-1.72715	2.74138
	Entrepreneurial Culture	-1.71776	2.59089
	Leadership Behavior	-1.83864	2.26957
External Entrepreneurial Environment	Environmental Dynamism	-2.50190	2.19713
	Environmental Hostility	-2.50657	2.70710
	Environmental Heterogeneity	-2.40842	2.31160
Entrepreneurial Performances	Knowledge Transfer	-.78817	2.02543
	Entrepreneurial Education	-2.23532	2.75153
	Pathways for Entrepreneurs	-2.10214	2.80705
	Internationalization	-2.35819	2.25777

### Test of Multivariate Outliers of 'Entrepreneurial Orientation' in AAU and BDU

Extreme Values of EO Variable

University			Case Number	Value	
Addis Ababa University	Mahalanobis Distance		1	28	10.48168
			2	12	10.00360
		Highest	3	23	9.22475
			4	34	9.01124
			5	29	8.95268
			1	8	.25045
			2	32	1.07855
		Lowest	3	9	1.71711
			4	21	1.77964
			5	18	1.96536
Bahir Dar University	Mahalanobis Distance		1	47	13.08646
			2	39	11.39726
		Highest	3	62	10.59160
			4	66	8.91600
			5	46	8.71150
			1	53	.19362
			2	73	.46929
		Lowest	3	58	.75370
			4	43	1.10820
			5	52	1.14562

### Test of Multivariate Outliers of 'Organizational Entrepreneurial Environment' in AAU and BDU

Extreme Values of OE Variable

University			Case Number	Value	
Addis Ababa University	Mahalanobis Distance		1	37	17.92430
			2	38	17.82302
		Highest	3	11	12.99097
			4	4	10.52785
			5	26	9.61290
			1	36	.59418
			2	24	1.09401
		Lowest	3	8	1.13492
			4	30	1.23490
			5	1	1.26334
Bahir Dar University	Mahalanobis Distance		1	50	11.33175
			2	68	11.17238
		Highest	3	46	10.45490
			4	78	9.78151
			5	62	8.14205
			1	58	.46155
			2	45	1.23122
		Lowest	3	52	1.43383
			4	71	1.67072
			5	59	1.70893

**Test of Multivariate Outliers of ‘External Entrepreneurial environment’ in AAU and BDU**

**Extreme Values EE Variable**

University			Case Number	Value	
Addis Ababa University	Mahalanobis Distance		1	3	13.18654
			2	38	8.22729
		Highest	3	26	7.38404
			4	5	5.80077
			5	37	5.70860
			1	24	.24172
			2	19	.25589
		Lowest	3	25	.40386
			4	21	.45099
			5	11	.46166
Bahir Dar University	Mahalanobis Distance		1	54	11.81848
			2	72	8.97223
		Highest	3	60	6.50440
			4	78	6.45670
			5	42	6.02267
			1	59	.02872
			2	55	.06698
		Lowest	3	61	.11362
			4	62	.16765
			5	53	.22879

## Test of Multivariate Outliers of ‘Entrepreneurial Performance’ in AAU and BDU

**Extreme Values OP Variable**

University			Case Number	Value	
Addis Ababa University	Mahalanobis Distance		1	4	10.56362
			2	16	10.28422
		Highest	3	33	9.35610
			4	12	8.66019
			5	11	7.71603
			1	24	.25646
			2	37	.63665
		Lowest	3	9	.75577
			4	8	.78768
			5	17	.80401
Bahir Dar University	Mahalanobis Distance		1	43	17.22022
			2	39	14.89590
		Highest	3	72	12.69680
			4	44	8.41738
			5	42	6.31973
			1	58	.38530
			2	68	.70378
		Lowest	3	67	.93023
			4	55	.96971
			5	56	1.05730

## Tests of Multivariate Normality, Skewness and Kurtosis

**Descriptive Statistics**

Variable		N	Minimum	Maximum	Mean	Std. Dev.	Skewness		Kurtosis	
			Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Entrepreneurial Orientation	Autonomy	78	6.00	30.00	19.8718	5.34853	-.516	.272	-.491	.538
	Innovativeness	78	7.00	34.00	20.5641	5.86336	-.027	.272	-.507	.538
	Proactiveness	78	7.00	33.00	19.3077	6.00499	.170	.272	-.211	.538
	Competitiveness	78	6.00	29.00	17.0897	5.11983	-.081	.272	-.528	.538
	Risk taking	78	5.00	25.00	13.5769	5.03886	.154	.272	-.584	.538
	Control Systems	78	11.00	31.00	22.6026	4.46731	-.631	.272	.048	.538
Organizational Environment	Organizational Structure	78	9.00	30.00	19.6282	4.72382	-.193	.272	-.561	.538
External Environment	HRM	78	7.00	34.00	17.4359	6.04225	.526	.272	-.070	.538
	Culture	78	8.00	39.00	20.3590	7.19483	.454	.272	-.165	.538
	Leadership	78	6.00	28.00	15.8462	5.35512	.100	.272	-.921	.538
Entrepreneurial Performances	Dynamism	78	5.00	22.00	14.0513	3.61777	-.519	.272	.086	.538
	Hostility	78	6.00	28.00	16.5769	4.21968	.114	.272	.425	.538
	Heterogeneity	78	4.00	19.00	11.6538	3.17796	-.228	.272	-.118	.538
Pathways for Entrepreneurs	Knowledge Transfer	78	13.00	44.00	29.6026	7.10833	-.169	.272	-.190	.538
	Internationalization	78	16.00	81.00	43.8333	13.24045	.189	.272	-.108	.538
	Entrepreneurship Education	78	11.00	44.00	27.8590	7.14911	-.119	.272	-.002	.538
	Pathways for Entrepreneurs	78	7.00	34.00	19.1026	5.41424	-.069	.272	.278	.538

## Tests of Normality

Tests of Normality

Variable	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Autonomy	.155	78	.000	.958	78	.012
Innovativeness	.097	78	.068	.982	78	.356
Proactiveness	.081	78	.200 <sup>*</sup>	.985	78	.510
Competitiveness	.081	78	.200 <sup>*</sup>	.987	78	.642
Risk-taking	.123	78	.006	.970	78	.063
Control Systems	.112	78	.016	.957	78	.010
Organizational Structure	.083	78	.200 <sup>*</sup>	.984	78	.447
HRM	.113	78	.016	.963	78	.022
Culture	.090	78	.188	.970	78	.060
Leadership	.088	78	.200 <sup>*</sup>	.970	78	.066
Dynamism	.123	78	.006	.966	78	.033
Hostility	.086	78	.200 <sup>*</sup>	.986	78	.565
Heterogeneity	.159	78	.000	.969	78	.051
Knowledge Transfer	.080	78	.200 <sup>*</sup>	.981	78	.304
Internationalization	.069	78	.200 <sup>*</sup>	.991	78	.843
Entrepreneurship Education	.077	78	.200 <sup>*</sup>	.986	78	.553
Pathways	.083	78	.200 <sup>*</sup>	.981	78	.303

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

### Box Plots for Each Variable and Constructs

