ENTREPRENEURIAL UNIVERSITY: THE CASE OF THE UNIVERSITY OF THE PHILIPPINES MANILA

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Abstract

Traditionally, the universities’ missions are to teach and to do research. But later, universities have assumed a third mission, to commercialize research knowledge, hence, the term entrepreneurial universities. Entrepreneurial Universities can contribute directly to economic growth of the country by technology transfer of research outputs to private enterprises or start-ups of companies both leads to job creation and employment. According to the Resource Based View framework “commercialization at universities is a process that can be promoted or inhibited through an infrastructure of resources such as institutional, human, financial and commercial resources that convey entrepreneurship.” (Lopez, A.S., 2013, p.10), On the other hand, Osiri, McCarty, & Jessup (2013) explained that there are key factors to success of entrepreneurial universities. The objective of this study is to determine if the University of the Philippines Manila has the requisite institutional, human, financial, and commercial resources to be considered as an entrepreneurial university and if it has the key factors that make successful entrepreneurial universities namely (a) the capacity to generate intellectual property (IP) (b) a technology transfer office (TTO), (c) an entrepreneurship expert to offer functional business knowledge (d) an entrepreneurial culture (EC) and (e) Academic entrepreneurs access to financial capital. I used case study method to evaluate the University of the Philippines Manila if it is an entrepreneurial university. In particular, I conducted key persons interviews, use of secondary data, and observation method. Result of the study showed that UP Manila matched the criteria of being an entrepreneurial university. It has the institutional, human, financial, and commercial resources of an entrepreneurial university. However, it lacks institutional resource factors associated with entrepreneurial culture. To promote entrepreneurship in the university, the UPM should promote instructions on academic entrepreneurship, identify and support academic entrepreneur role models and celebrate and reward academic entrepreneurship.

The study made use of the Resource Based View Framework of Lopez., A.S (2013) viz a viz key factors of success in gauging the progress of a university towards becoming an entrepreneurial university.

Key Words
Entrepreneurial university; academic entrepreneurship; third mission of universities; entrepreneurial culture
Introduction

Background of the Study

Universities have always been acknowledged for their contribution to economic development by supplying the educated and trained individuals who become part of the human resource that run businesses and other organizations. Traditionally, the university’s mission is to teach and to do research. But later, universities have assumed a third mission, to commercialize research knowledge, hence, the birth of entrepreneurial universities. Entrepreneurial universities contribute directly to economic growth of the country through technology transfer of research outputs to private enterprises or start-ups of new companies leading to creation of jobs and employment.

Several theoretical models have been proposed by authors to explain the phenomenon of entrepreneurial universities including those of Clark 1998; Etzkowitz 2004; Kirby 2005; O’Shea et al. 2005, 2008; Rothaermel et al. 2007; and Sporn 2001 (as cited in Guerrero and Urbano, 2010). There have also been empirical studies made between 1995–2008 that analyzed entrepreneurial universities from several countries (Guerrero and Urbano, 2010) and the ways of identifying them. Several authors (Mets, 2010, Meyers and Pruthi ,2011, Osiri, McCarty, & Jessup, 2013), have identified factors that facilitates the achievement of the mission of entrepreneurial universities.

This paper sought to study if the University of the Philippines Manila (UP Manila) is an entrepreneurial university. The phenomenon of entrepreneurial university has been around for decades in many countries and is recently gaining a resurgence. UP Manila, one of the autonomous unit of the University of the Philippines (UP), is committed under UP’s strategic plan for 2011-2017, “to establish and strengthen technology transfer and business development units and undertake intellectual property protection and management.” This can be seen as a call for UP Manila to align with the global universities’ new mission, to teach, to do research, and to commercialize research output. This case study seeks to gauge the progress of UP Manila towards this direction using an existing framework in the literature.

Research Objectives

The following are the objectives of this research:

1. To determine if UP Manila qualifies in terms of resources to be considered as an entrepreneurial university:
   (a) institutional resources,
   (b) human resources,
   (c) financial resources, and
   (d) commercial resources

2. To determine if UP Manila has the factors of a successful entrepreneurial university namely:
   (a) the capacity to generate intellectual property (IP)
   (b) a unit or units that facilitate the technology transfer process
   (c) entrepreneurship expert/s to offer functional business knowledge,
   (d) an entrepreneurial culture (EC) and
   (e) access to financial capital of academic entrepreneurs.
Scope

This is a single case research study on the status of the University of the Philippines Manila as an entrepreneurial university. This study was based on the examination of UP Manila under the lens of the Resource Based-View Framework of an entrepreneurial university of Lopez, A.S. (2013) and the concept of key success factors that makes successful universities proposed by Osiri, McCarty, & Jessup, 2013. The findings of the study were based on the responses made by key resource persons interviewed and the evaluation of the researcher. This research was conducted during the third quarter of the year 2014.

Hypotheses

1. The first set of research hypotheses refer to resources that UP Manila must have to be considered as an entrepreneurial university:

   1.1 UP Manila has the institutional resource of an entrepreneurial university;
   1.2 UP Manila has the human resource of an entrepreneurial university;
   1.3 UP Manila has the financial resource of an entrepreneurial university;
   1.4 UP Manila has the commercial resource of an entrepreneurial university.

2. The second set of research hypotheses refer to the factors that make successful entrepreneurial universities:

   2.1 UP Manila has the capacity to generate intellectual property (IP);
   2.2 UP Manila has a unit/units that facilitate the technology transfer process;
   2.3 UP Manila has entrepreneurship experts to offer functional business knowledge;
   2.4 UP Manila has an entrepreneurial culture (EC);
   2.5 UP Manila has the financial capital available for academic entrepreneurs.

Review of Literature

There are several definitions of an entrepreneurial university in the literature. For purposes of a standard definition in this paper, I used the definition of Etzkowitz (as cited in Cano & Pulido, 2007, p. 8) which defines entrepreneurial universities as “Universities that are considering new sources of funds like patents, research under contracts and entry into a partnership with a private enterprise” The concept of entrepreneurial university is a product of the so called second academic revolution which gave rise to the university’s third mission, incorporating economic and social development to its teaching and research mission. (Mets 2010). The first academic revolution that took place in the late 19th and early 20th centuries added research as an academic function to teaching. Several authors explain the conceptualization of the third mission of the university: as a change in the “social contract” between the university and the state (Guston & Keniston, 1994 as cited in Martinell et al. 2008), as a shift between modes of knowledge production (Gibbons, et al 1994 as cited in Martinelli et al. 2008), as the emergence of the Triple Helix Model (Leydesdorff & Etzkowitz, 1996 as cited in Martinelli et al. 2008).
Although universities could share some ultimate goals but since they have different histories, traditions, and organizational structures, there is no typical way to become an entrepreneurial university (Martinelli, et al., 2008). In the United States, it was the passage of the University and Small Business Patent Procedures Act (or the Bayh–Dole Act) in 1980, which paved the way for fueling the growth of entrepreneurial universities (Osiri and Clarke, 2013). Before the Act, very few universities have faculty members engaged in commercial activities as entrepreneurship was thought to be the domain of the non-academic or industrial sectors. The prevailing notion was that university should solely focus on pure academic research (Osiri and Clarke, 2013). Until now, there are still some who up to these days adhere to the norm of open science in which the goal was publication and widespread dissemination of findings to the public. However, as Etzkowitz (1998) noted, the norms of science which traditionally condemn profit-making motives are beginning to change to allow entrepreneurship.

Osiri, McCarty, & Jessup (2013) suggested five pointers for universities to be successful entrepreneurial universities. According to these authors, institutions “(I) Must first possess the capacity to generate intellectual property (IP), (II) Should have a technology transfer office (TTO), or a unit that facilitates the technology transfer process, (III) Should have at least one entrepreneurship expert to offer functional business knowledge, (IV) Should create an entrepreneurial culture (EC) and (V) Academic entrepreneurs should have access to financial capital.”

There are several frameworks to explain the concepts of entrepreneurial university in the literature such as those of Guerrero and Urbano, 2010; Lopez, A.S. 2013; Pei-Lee and Chen-Chen, 2008; and Salamzadeh, Salamzadeh, and Darai, 2011. Wood, M.S. (2011) develop a multi-stage process model of academic entrepreneurship with the intention of improving chances of success of potential stakeholders. Wood’s (2011) three stage entrepreneurship path are: “Innovation disclosure and intellectual property protection stage, Awareness and securing industry partnership stage, and commercialization stage.” The usefulness of this process model of entrepreneurship is because it clarifies the activities, potential stakeholder roles, and key success factors associated with each stage.

In this study, I used the Resource Based View Framework of Lopez, A.S. (2013) combined with the Entrepreneurial Success Factors concept of Osiri, et al. (2013) to consider the case of the University of the Philippines Manila as an entrepreneurial university.

The theoretical framework of Lopez, A.S. is clear and comprehensive with regards to the process involved in university entrepreneurship. Under the framework, “the opportunity sources are the faculty, research staff, and students of the university and external partners. The potential entrepreneurial output for the university are the technology transfer licensing agreements, spin-offs, start-ups, or consultancy agreements. The tangible and intangible resources consist of the combination of institutional, human, financial, and commercial resources. The resources are combined and used in the process following the five stages. The five stages in the proposed model, are: (1) opportunity recognition and discovery; (2) development and assessment of potential business models; (3) development of business prototypes and plans; (4) evaluation and negotiation of entry strategies; and (5) commercialization and market entry.” (Lopez, 2013). Each type of resources in Lopezes’ model can be matched to Osiri’s et al. key success factors of an entrepreneurial university; e.g. for institutional resources - culture of entrepreneurship for; human resources - capacity to generate intellectual property and expertise in entrepreneurship; for financial resources- access to financial capital; and for commercial resources- a unit that facilitates the technology transfer process or a technology transfer office.
According to the Resource Based-View Framework, a resource should be valuable, rare, inimitable, and non-substitutable (VRIN) to be a competitive advantage. Thus, the key success factors provide the competitive advantage of the entrepreneurial university as they are of the same importance to the university.

**Methodology**

I used the single case research method in this study. I applied the method of triangulation of data sources to obtain reliable results. In particular, I interviewed three key persons of the university to obtain information about the subject of the study. I interviewed two administrative research officers and a faculty researcher of the university. I made appropriate arrangements to interview the key persons in their respective offices. I prepared interview scripts and reviewed relevant documents prior to each interview. I recorded the interviews upon obtaining permission.

Aside from key persons interview, I made use of secondary data, of relevant documents to substantiate research on the subject of study. I referred to the UP Manila Research Manual (2011), the 2011 Handbook of Intellectual Property Rights (IPR) Policy of the University of the Philippines, copies of memos, and minutes of the meeting of the Intellectual Property Office obtained with permission in order to extract information related to the area of investigation.

I also made use of participant observation method in getting information about the case being a member of the Intellectual Property and Technology Transfer Management Committee (IPTMC) of the university’s intellectual property office and being a researcher myself.

**Results and Discussion**

The University of the Philippines Manila is an entrepreneurial university. Though, it may have insufficient resources, it has the requisite institutional, human, financial, and commercial resources cited under the Resource Based-View Framework proposed by Lopez, AS. (2013).
Institutional resources relate to (1) university community attitudes towards entrepreneurship, (2) presence of organizational rules, norms and procedures, (3) entrepreneurial education and teaching methodologies, and (4) presence of role models that encourage entrepreneurial behavior in the university (Lopez, A.S., 2013). All these four factors are components of a university’s entrepreneurial culture. In terms of the university community attitudes towards entrepreneurship, the constituents of the university are more oriented towards research for publication and not to commercial application. One of the key persons interviewed sums this up by saying “the typical attitude of the researchers in the university is to dedicate themselves to research without expecting the commercial significance of their studies.” Oftentimes, this attitude is due to lack of knowledge or misconception about commercialization of research. As one key resource person interviewed said,

“I have interviewed a lot of professors and scientists and they have many inventions unpublished and yet they have not yet pursued the registration or application for patents for their inventions simply because, they have no interest… not all but a lot will have misconceptions regarding patents, regarding the procedures.”

The university currently lacks a system of entrepreneurial education and teaching methodologies that fosters academic entrepreneurship. This must be addressed in the university curriculum. All the persons interviewed recognized the importance of entrepreneurial education and development of teaching methodologies in fostering university entrepreneurship. One of the resource persons think

“A one or two unit course must be created under the General Education (G.E.) program of the university to teach entrepreneurship and intellectual property management. The least that can be done is to include in the syllabus of a G.E. subject, the teaching of these topics.”

In terms of the university rules and procedures governing intellectual property management, UP Manila published a Research Manual in 2011 which contains under Chapter 5 detailed discussion about intellectual property. It covers organizational rules, norms, and procedures related to compensation and performance evaluation systems of the university to encourage entrepreneurship.

The university can also be credited to recognizing patent grants in the assignment and promotion of faculty researchers. The 2011 Handbook of Intellectual Property Rights (IPR) Policy of the University of the Philippines contains the rules and regulations governing technology transfer and commercialization of research in the university.

With regards to role models that encourage entrepreneurial behavior, though the university has a large pool of intellectual and creative talents, it does not foster role modelling to promote and inspire the faculty to become academic entrepreneurs. In other universities, productive researchers or serial inventors from each unit are singled out and encourage to act as role models to promote entrepreneurship Goktepe-Huelten (2008). It is a challenge to UP Manila to develop an entrepreneurial culture. It requires the contribution of everyone, especially the researchers themselves, who according to Goktepe-Hulten (2008), are the major players in the promotion of entrepreneurial university culture.
In terms of human resources, UP Manila possesses the capacity to generate intellectual property. UP Manila formerly known as the Health Sciences Center, is one of the autonomous campuses of the University of the Philippines System. As a public, non-sectarian, non-profit institution of higher learning, it is composed of nine (9) degree granting units headed by a Chancellor. The nine degree granting units of the university are the College of Medicine, College of Pharmacy, College of Dentistry, College of Public Health, College of Nursing, College of Arts and Sciences, College of Allied and Medical Professions, National Teachers Training Center for the Health Professions, School of Health Sciences (main campus in Palo, Leyte and two extension campuses in Baler (Aurora) and South Koronadal (Cotabato City). The Philippine General Hospital is the teaching hospital of UP Manila. The National Institute of Health (NIH) is the health research center of the University, created by the UP Board of Regents in 1996 as an institutional home of a network of various research and extension units specializing in health and socio-biomedical concerns.

Given UP Manila’s pool of academic health practitioners and clinicians from its constituent units, it surely has the capacity to generate intellectual property. The university administration is very supportive of strengthening technology transfer. This is the reason why, one of the key persons interviewed, considers human resource as the university’s competitive edge over other institutions.

In relation to financial resources, UP Manila has the budget to support Research and Development through the National Institute of Health which awards research grants to interested researchers. Also the UPM-IPO provides funding assistance to prospective academic entrepreneurs for R&D, capacity building, and technology transfer activities. A major source of UPM-IPO funding comes from earnings received by the university from technology transfer fees of the herbal drug researches. One usual problem encountered by the IPO given the support of the administration for its projects, is that the financial assistance takes time to be delivered. One key person interviewed confides, “this is a reality that is quite hard to change in a government setting. I am very positive though that things can be done. With all these constraints we can always find ways and means to do it. Of course when we compare ourselves with private universities they can make decisions faster and release money faster. But in terms of brains of people who are inventing which is the most important part of the ingredient, we have it at UP.”

However, the IPO aspires that the university may be able to provide substantial budget to the office to carry out its big projects foremost of which is for capacity building in terms of hiring of personnel and provisions of full range of service, legal, technical, and administrative.

In terms of commercial resources, UP Manila has the research facilities in its constituent units, the National Institute of Health (NIH), and the Philippine General Hospital (PGH), and in the various teaching and laboratory facilities in each college.

UP Manila has a Technology Transfer Office. This is the UP Manila-Intellectual Property Office (IPO)*, which was created and operationalized in 2006, under the office of the Vice Chancellor for Research. The senior lawyer of the Legal Office of the UPM was appointed as the concurrent head of the UPM-IPO reporting to the Vice Chancellor for Research in this capacity. The UPM-IPO is charged with the following specific tasks: 1) Interact and assists faculty and researchers in protecting innovations/inventions; 2) Handle inventions/disclosures and maintains patents and other intellectual property; 3) File and prosecute patent applications with Intellectual Property Office of the Philippines (IPOPHL); 4) Implement approved Intellectual Property Right’s protection policies; 5) Conduct seminar and training courses on Intellectual Property and
Intellectual Property Rights protection; and 5) Network with IP professional/organizations and industry.

The UPM-IPO provide the following services:
- IPR Assistance such as patent search, patent drafting, patent filing, prosecution, and maintenance.
- Technology licensing and commercialization services
- Funding assistance for further R&D, capacity building, and IP and technology transfer activities

In relation to the success factors of an entrepreneurial university, as proposed by Osiri, et al. (2013). “(I) the capacity to generate intellectual property (IP), (II) a technology transfer office (TTO), or a unit that facilitates the technology transfer process, (III) an entrepreneurship expert to offer functional business knowledge, (IV) an entrepreneurial culture (EC) and (V) Academic entrepreneurs access to financial capital.” UP Manila has 4 out of 5 of these factors. The four factors have already been mentioned namely; the capacity to generate intellectual property (under human resources), technology transfer office (under commercial resources), entrepreneurial culture (under institutional resource) and academic entrepreneurs access to financial capital (under financial resources). Only the factor of having an entrepreneurship expert to offer functional business knowledge remains to be commented.

In this regard, UP Manila has entrepreneurial experts to consult on issues related to technology transfer and commercialization of research outputs in the university. The UPM-IPO can tap the experts from the University of the Philippines System Technology Transfer and Business Development Center when need for these consultations arise. The table below summarizes the findings of the study:

| The Case of UP Manila as an Entrepreneurial University-Summary of Findings |
|---|---|---|
| **Resources** | **Key Success Factors** | **Action Plan** |
| **Institutional** | ☽Culture of entrepreneurship | Promote culture of entrepreneurship by teaching academic entrepreneurship as an undergraduate course, develop effective teaching methodologies, seminar-workshop for faculty, and research staff, identify and support role models, incentivize academic entrepreneurship. |
| • University community attitude towards entrepreneurship | | |
| • Organizational rules, norms and procedures | | |
| • Entrepreneurial education and teaching methodologies | | |
| • Role models | | |
| **Human** | ☽Capacity to generate IP | Encourage academic entrepreneurship in the university |
| • People with skills and knowledge | ☽Entrepreneurial experts | |
The success of the entrepreneurial university can be secured if it has the institutional, human, financial, and commercial resources and the key success factors appropriate for each resource.

The first of which are the human resources or people with skills and knowledge and entrepreneurial experts with the capacity to generate intellectual property. Second will be financial resource which means availability of funds to support initiatives with potential for commercial success. The third is commercial resource in terms of having the entrepreneurial support structures.

Undoubtedly, UP Manila is an entrepreneurial university. The tangible proof of this are the millions of pesos it has earned in royalties out of technology transfer licensing agreements with private companies. But for the University of the Philippines Manila to continue to be an entrepreneurial university, it must be able to address all its resource-based issues. Foremost of which are the institutional resource needs to develop a culture of entrepreneurship in the university. This can be accomplished by implementing a compulsory instruction on entrepreneurship in relation to intellectual property (academic entrepreneurship) in the General Education courses of the undergraduate students, developing effective entrepreneurial teaching methodologies, and by promoting academic entrepreneurship through seminars-workshops for the faculty and research staff. This recommendation will addressed both human resource development and institutional resource concerns. Another way is by identifying role models in the university who can help in the promotion of academic entrepreneurship. Serial inventors who have successfully patented and commercialized researches can serve as models. In addition, the rules and guidelines on intellectual property management of the university should be improved to be facilitative and supportive of academic entrepreneurship rather than being merely regulatory. The Intellectual Property Office of the University should be strengthened and improved in terms of capacity and capability by converting the IPO to a complete technical, legal, and business development center ready to assists would be academic entrepreneurs in terms of their concerns. Last but not the least at UP Manila, there should be readily available funds in support of the academic entrepreneurs.

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In 2015, the UP Manila-Intellectual Property Office has been renamed the Technology Transfer and Business Development Office. The new office is proposed to be a complete service unit involved in technology transfer and commercialization of research output of the university.
References


