



Study of Commercial utilization of Ph. D. Researches

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Abstract

'Research' as stated in Oxford Dictionary, means 'The study of materials and sources in order to establish facts and reach new conclusions'. It is also known as discovery, elucidation, and evaluation of new knowledge, ideas, and the technologies essential for driving the future of the society and humanity. Research fosters professional excellence. Research is an opportunity to make a difference to the society. When students, practitioners and researchers engage in research, they become better and prepare themselves and the society for the challenges and opportunities of the future. Commercialization of the research on one hand makes the research results available to the public and on the other hand aids the process of research itself and the researcher economically. This research is an effort for evaluation of the commercialization of research projects which are funded by the Government. Simple questions regarding commercialization of any type were asked from the research scholars. The results reveal that only one percent of the total research projects funded by the Government have been utilized commercially.

Introduction

A PhD is a globally recognized Doctorate degree in academic, awarded by universities and higher education institutions to a candidate who has submitted a dissertation, based on extensive and original research in their chosen field. It is executed with the support of one or more expert academic supervisors. It is a highest academic degree, research has become of paramount significance in the world where knowledge becomes the new light. Research is the basis of knowledge that makes possible so much of the innovation and application that give wider benefit.

An academic research is a theoretical field at a public institution also takes part in collaborations with industrial partners. Basic research is directly useable for society in long time. The outcomes of researches are able in shaping better life and social values. University must work as the reviewer and conscience of society. The university's academic department, industrial laboratories, research centers, start-up companies provide various path to commercial utilization of new research.

Government frame suitable policies to promote innovative research among universities and institutions. Encourage researcher to quality research. Link with industry and corporate; provide options and helpful environment for those who have PhD degrees to turn to research or innovations into commercialization, wealth creating ideas and entrepreneurial joint ventures. Researchers should set up commercial entities as in professionals with research institutes. Should be start-up to easy and flexibility to encourage universities and research institutes to commercialize their research based inventions or innovative ideas.

This paper find out PhD students perceptions of their entrepreneurial and commercial capabilities, their outlook towards they engage in external collaboration. In the past years students was willingness to investing in entrepreneurial skilling to a point, and also with the wishing to maintain a balance among mastery of their discipline and the development of



entrepreneurial ability. However, there was no evidence, there was no evidence found that individual capability combined with university is a predictor of research commercial utilization activities or any collaborative research effort.

The research conducted by Lawrence Dooley¹, explores PhD students perceptions of their entrepreneurial and commercial capabilities, their attitude towards university supports and the extent to which they engage in external collaboration. There is strong base to work from considering the level of absorptive capacity in terms of industrial experience and the desire to increase business or entrepreneurial capability. This capacity sits alongside a realism on the part of students who openly acknowledge their skill deficit but believe that education modules can close the gap. There was willingness to invest in entrepreneurial up skilling to a point, with the students wishing to maintain a balance between mastery of their discipline and the development of entrepreneurial capability. Now a days, entrepreneurship has gained increased recognition as significant driver of development of society welfare. Government have acknowledged the importance and of their role in motivating individuals, related stakeholders and business men to perceive and improve new opportunities that can promote positive change and create economic development in their societies.

Commercial utilization itself can occur in various forms. For example, it can occur in the form of university spin-offs, consulting, or licensing (Jain. 2009²; Rothaermel 2007³). Universities play a central role in originating and promoting the dissemination of knowledge and techniques that contribute to industrial innovation. Universities in particular are encouraged by policy and funding instruments to engage actively in the diffusion of research based knowledge by multi permutes. Public research organizations particularly universities, are becoming increasingly entrepreneurial, focusing on the realization of commercial value from research and searching for new organizational arrangements that produce a closer alignment between scientific research and innovation.

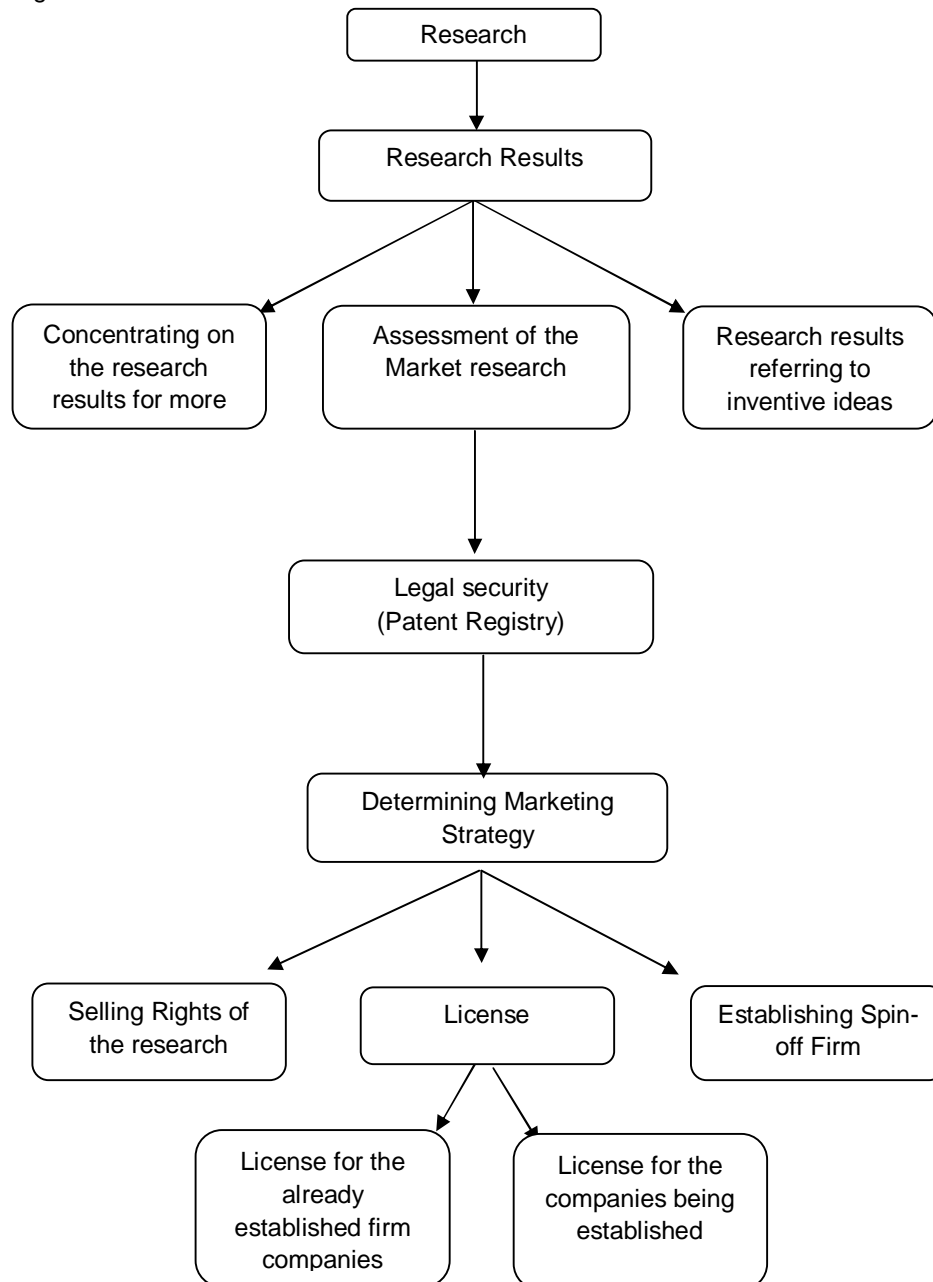
The universities research community has always been under various forms of outside pressure—political, economic and institutional, that has had the potential to impact, for better or worse, the nature and direction of academic research. And, of course researchers bring their own biases, ambitions and tendencies to their work. One of the main factors related to general entrepreneurial—Skill approach success is human capital (Allen 2007)⁴. Especially in innovative start-ups, such as life sciences spin-offs, entrepreneurs are said to require a set of skills to transform their ideas into profitable ventures (Bygrave and Hofer 1991)⁵. Academic research is rarely, if ever truly pure. In recent years, however a new type of pressure has descended on university based research by way of increased emphasis on the commercialization of research. Two areas where the push for increased commercialization of university based research appear particularly evident are research funding and program support. In Canada, for example, there is very few research funding opportunities that are not touched by the commercialization ethos. The⁶ world's most prosperous and advanced economies are "innovation-driven". They have strong national innovation systems that are built on a foundation of close relationships between the research and industry sectors. On May 26, the federal government released its Boosting the Commercial Returns from Research strategy to strengthen Australia's innovation system. This has been in the works since 2014 as part of the government's wider Industry Innovation and Competitiveness Agenda.

A university's first role is to undertake 'basic' or 'pure' research that involves exploration and discovery to create knowledge. This type of research remains important – it provides the building blocks for applied research that can be taken to market. Study of research policy suggest that the commercialization ethos and associated pressures are unlikely to relent anytime soon and may in fact become the central or defining mission of university based research.

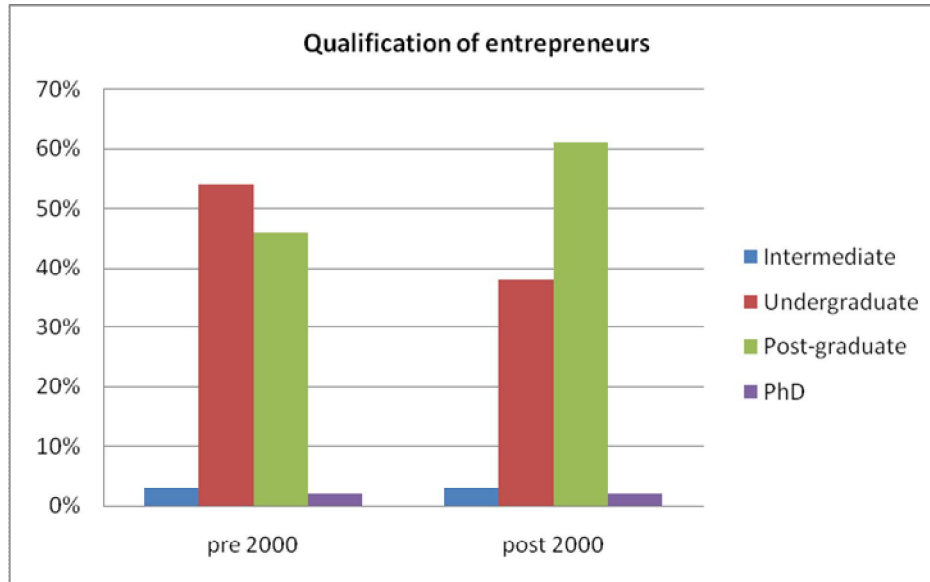
Academic Entrepreneurship

The concept of entrepreneurship is depending on the creation of new business and the development of existing ones. An increasing source of the ideas and core technologies that drive entrepreneurial effort is research conducted on university campuses. The idea of entrepreneurial universities has become included in a more focused concept called “Academic Entrepreneurship”, it is like an umbrella which refers to the efforts and activities that universities and the industry, which partners undertake in prospect of commercializing the outcome of faculty research. The process of commercialization of research explains by researcher:

Figure 1



According to report of National Knowledge Commission of India (2008)⁷, they survey on the educational status of entrepreneur and found that only 2% of the entrepreneurs interviewed have a PhD degree. This may lead one to conclude that many more doctorate degree holders (PhDs) could be potential entrepreneurs provided an enabling environment is created. Indian academia is yet to appreciate the kind of flexibility that prevails in campuses abroad, especially in the Silicon Valley where many PhD students and academics are also very successful entrepreneurs.



National Knowledge Commission has already recommended the establishment of IPR Cells in major scientific and educational institutions with competent staff, trained in law and technical aspects of various disciplines in order to capture the value and exclusivity of new ideas and innovations. Entrepreneurs generally agree on the utility of education. However, there is potential to improve the relevance of subjects of study. High-tech innovations translating into wealth generating ideas could also improve if more PhDs and research scholars are provided a flexible supportive environment for Entrepreneurship in their institutions.

The ability to connect specific knowledge and a commercial opportunity requires a set of skills, aptitudes, insights and circumstances that are distributed neither uniformly nor widely (Venkataraman, 1997). If creating a new entity, academics are involved in both the invention and the commercialization, thus they need both specific scientific knowledge and business skills and capabilities. We found that two most important characteristics, even after controlling for a number of other characteristics and environmental situations, are the academic inventor's entrepreneurial experience and their commercialization activities or inclination towards commercializing their research.

Literature Review

Poursoleyman (2005)⁸ holds that special procedures have to be taken to set research cycles from universities to industries in motion. This seems essential due to the necessity for commercializing the research results and the technological development in line with wealth and industries added value, on the one hand, and the significant role played by universities and educational centers to train and supply highly specialized forces as well as to extend the domains of knowledge and technology throughout the world, on the other. If one is supposed to point out the significant role of such scientific and technological institutes as parks and technology development centers, he has to do his best to form a relationship between



educational and research centers and industrial sectors to supply the technological as well innovative demands. In effect, such newly-established non-governmental centers support commercialization of research achievements through offering consulting services, cooperation and risk reduction. Parallel with the formation of certain elements effective in commercialization, we are daily witnessing the rapid growth of such parks and technology development centers.

G. Ktepe (2005)⁹ considers the concept of "technological transfer" among universities and industries as transference of an idea, method, object, skill, technical knowledge, mental asset, discovery or invention due to scientific research in an academic department (individually or collectively) to an industrial site where it is likely to result in improvement of products or processes.

Shane, (2003)¹⁰ the need for independence refers to the extent to which individuals take responsibility for their own lives and activities and trust their own judgment. In dependent employment, the guidelines and barriers of everyday work limit the independence of such individuals. For example, if researchers at universities have limited freedom in choosing their own research topics, they could be discouraged, which would increase the attractiveness of choosing alternatives, such as founding their own firm.

Objective of Research

To study whether the research scholars are using their research results for commercial purposes or not, is the main objective of this research paper.

Hypothesis and Methodology

H₀-Researchers do not set up commercial entities based on their Research/ Inventions.

To test this hypothesis, a quantitative approach was adopted. For the purpose, 200 research scholars of various faculties i.e. Arts, commerce, management, science, computer science, education, language, engineering, law and journalism were selected on Random Sampling basis. The survey was designed to explore the issue discussed above. Percentage and comparison means method is used for the analysis.

Limitations

Every Study has to be fixed into a certain boundaries. In this case the study is limited by the following:

- Since both primary and secondary data were used in the study.
- The geographical boundaries of the study are limited to the state of Madhya Pradesh only.

Analysis

Sr No..	Name of Faculty	Teaching	Copyright	Patent	Establishment of Enterprise	Earning Royalty	Other
1	Arts	10%	--	--	--	--	--
2	Commerce	10%	--	--	--	--	--
3	Management	10%	--	--	--	--	--
4	Science	10%	--	--	--	--	--
5	Computer Science	9.5%	--	0.5%	--	--	--
6	Education	10%	--	--	--	--	--
7	Language	10%	--	--	--	--	--
8	Engineering	9.5%	--	0.5%	--	--	--
9	Law	10%	--	--	--	--	--
10	Journalism	10%	--	--	--	--	--
Total		99%	--	1%	--	--	--



We know that different options are available to scholars for utilizing their research. Registering Copyright, Patent, Earning Royalty, and Establishment of Commercial Enterprise and, teaching are to name a few. Upon observation, it was revealed that out of total 200 respondents, only 2 had applied for Patent. Rest of the scholars replied that they were utilizing their research for teaching purpose.

We know that different options are available to scholars for utilizing their research. Registering Copyright, Patent, Earning Royalty, and Establishment of Commercial Enterprise and, teaching are to name a few. Upon observation, it was revealed that out of total 200 respondents, only 1% had applied for Patent. Rest of the scholars replied that they were utilizing their research for teaching purpose.

It is observed that research scholars in Arts, Commerce, Management and Science are selecting only teaching option for their future and they are not interested in commercializing their research. In the Computer Science faculty only one researcher applied for patenting his research. In the engineering stream only 1 researcher out of 20, commercialized their research, they applied for Patent.

We can say that either, researchers are not aware for the commercialization of their research or if they are aware they may not be willing for establishment of commercial entity. They use their research and Ph. D. degree as a qualification in academics. Researchers neither use their research idea as sources of earning nor do they give any benefits to society and market. Thus the null hypothesis is accepted for this recommendation.

Findings

The study reveal that researches in field of computer science and engineering only have established commercial entities based on research. 200 respondents participated in the survey. Only 1% researcher commercialized there research. This reflects an adverse result for fulfillment of our main objective that is implementations of recommendations of National Knowledge Commission (NKC).

Conclusion

The National Knowledge Commission was a high-level advisory body to the Prime Minister of India, with the objective of transforming India into a knowledge society, given the recommendation for Enable PhDs/researchers to set up commercial entities while engaged in universities or professional employment, as well as encourage universities/ research organizations to establish commercialized enterprises based on their new inventions.

According to the above analysis, it is true that researches are more beneficiary when they give some outcome in way of commercialization. It is not meaning that every researcher establishes new entity but they can support to existing business or give innovative ideas for development.

Suggestions

1. It can be suggested that universities and higher educational centers try to attract aptitudes to encourage scientific elites to form both a research team as well as a development team. The way should be paved for other required circumstances to conduct applied research designs and to tackle social problems.
2. It is suggested to orient higher educational policies to entrepreneurship can be actualized through instructing entrepreneurship itself, innovation skills and creativity.
3. It is suggested to provide commercial and legal incentive structures that promote collaborations for granting IP rights to universities and research centers for inventions.
4. It is further suggested to encourage commercialization, where the inventor also has a stake in the royalties.

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