Innovation Management process in young academic institutes

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Abstract: - Technological innovations from most young universities and academic institutes generally emerge out of chaos. Thus, there is usually no support system put in place to support and manage this chaos. This is also largely due to the objectives of young academic institutions which are defined out of their mission to focus on academic excellence and placement rather than to nurture innovations that promise long term benefits. While there have been many social science research methodology based studies on this subject under the broad umbrella of "Innovation and Technology Management", there is usually an absence of a well defined process to help academic institutions to manage their intellectual property better. A clearly articulated method for translation of ideas into technological innovation will certainly help young academic institutes to inculcate research in students and teachers and would help identify the best commercial application of technological innovations.

In this paper we identify the need, propose and debate features of an innovation management process, based on cloud based technologies, particularly suitable for young academic institutes, to promote and support innovation in students and faculty.

Keywords: Innovation management, Cloud based technology.

I. INTRODUCTION

The environment of Academic institutions is changing at a rapid pace, mainly because the technological changes are taking place at a very high speed especially in comparatively new and emerging disciplines. The traditional disciplines are also applying the knowledge of emerging disciplines. The fast change in the computer technology and information technology is affecting the way of life in the campus and off the campus. Apart from the technological changes, colossal transformation is taking place in various dimensions of the employer market such as competition, merger, collaboration, economic reform, adoption of new technology, way of functioning, corporate culture, continuously changing work practices, shifting in product services, and market. Continuous changes in the external environment are forcing the institutions to change the way of functioning.

Besides academics, research has become essential for institutes to prove their excellence. The traditional working system is required to be changed in sync with the new scenario. The focus must be on research and innovation, as they have become the integral part of the present education system. Also, there is a need of evloving a robust support system that embeds the innovation management in young academic institutions along with the existing academic teaching learning process. The system must be able to identify talent, provide direction and facilitate innovators to a nurturing bed.

II. INNOVATION MANAGEMENT PROCESS

The term innovation comes from latin *innovare*, which means 'to make something new'. The element of newness can be found in various definition of innovation which can be traced back to literature [1]. Khandwalla (1985) states that organisations are deemed excellent because of their uniqueness, their pioneering spirit and innovation [2]. Lahiri (2005) states that innovation excellence means introduction and implementation of creative and novel methods of curriculum planning, design and implementation, teaching learning methods, assessment techniques, management etc. Academic excellence is defined in the form of deployment, output, processes and input to the educational institution. At different stages the excellence is something that makes the institution distinct than others. It is not necessary that all the institutions achieve excellence on all the dimensions of excellence but each institution achieves excellence in its core areas of performance. The parameters for excellence can be derived from the deployment of graduates and worked out in backward direction for planning and designing. The plans are

implemented to achieve excellence at every stage of implementation [3].

Innovation management brings together collaboration and social software, with a clear focus on generating results and developing a culture of knowledge sharing and innovation. Innovation always requires people with different skills and expertise to come together and co-create [5]. Globalization ensures expertise exists in every corner of the world; it is neither easy nor cost effective to put the experts in one room. Social software is a common way to bring together diverse opinions, it also allows many more people to share ideas and innovate together.

Fernando Cardoso de Sousa[6] states that while individual creativity always seems to be the starting point, because it may exist even in the absence of innovation, the organization depends on it to innovate. It is easy to get ideas; difficult is to implement a system to turn creativity into profitable business.

Petra Andries and Dirk Czarnitzki[7] states that small firms rely mainly on the CEO's individual knowledge for developing innovations but this approach is inefficient since it underutilizes other employees' knowledge. They further study to what extent the ideas from CEOs, managers and non-managerial employees' enhances small firms' innovation performance. A Heckman selection model on 305 small firms shows that not only CEO's and managers', but also non-managerial employees' ideas contribute to innovation performance. However, contributions depend heavily on the individuals' area of expertise and whether the product or process innovation is desired. Their findings enrich the current view on the entrepreneurial team, but also warn against the implementation of one-size-fits-all employee involvement programs in small firms.

Bhushan Patwardhan[8], an eminent professor at university of pune states that India is the only country that slipped 10 ranks to the 76th place in Global Innovation Index(GII) 2014. India is also the only country among the BRICS nations to have witnessed a decline in the rankings. On the other hand, India also performed poorly in the GIPC IP Index released in January 2014. It has now become imperative to measure the country's poor performance against the global standards. There is a need to have an effective innovation ecosystem in order to unleash the country's full potential. The creation of a vibrant innovation ecosystem requires several things, with talent being the primary requirement. The present scenario of things in India requires a shift in mindset from the traditional paths to encouraging risk-taking and challenging status quo. Universities and colleges have a significant role to play in developing and shaping this kind of talent base. The effective ecosystem and a robust infrastructure would enhance skills and motivate budding entrepreneurs to scale up innovation efforts. There is also a huge gap when it comes to providing a supporting environment for innovations and research. Indian scientists are doing extremely well overseas, largely because of the infrastructure and support they receive. It is important that the government, industry and academia work in close coordination to leverage existing resources for nurturing manufacturing innovation, thereby creating a robust innovation ecosystem.

Apart from this, India has large pool of traditional knowledge and innovative prowess and there is a need to protect this intellectual property. Poor IP Protection is a major hurdle to innovation, therefore there is a strong need for appropriate legislation, policies and legal decision to reaffirm stand on innovation and intellectual property. Hence, we cannot ignore the importance of intellectual property rights from economic, social and legal standpoints as it is a critical driver for innovation and ensures creativity, growth and progress.

Jeff Dyer and Hal Gregersen[9] suggests that innovation is a team game. Top executives must lead the innovation change by understanding how innovation works, improve their own discovery skills, and sharpen their ability to foster the innovation of others.

The reason behind the exponential growth of IIT Bombay's patent filing is attributed to in-house professional patent search facility. An extended panel of attorneys is available to help innovators to file IP patents, copyrights, designs and trademarks. Workshops and seminars are also expected to be conducted to improve the innovation portfolio of the organization [10].

According to the report published in NISTADS during the period from 1990-2007, Indian patents output was 26,250 wherein the patentees from industry sector contributes 57% of the total patents, the university sector contributes only 5% and the government sector contributes 21% of the total patents. Individual inventors contribute 17% of the total patents during this period [11].

A report by consulting firm Zinnov states that universities in the country, including the IISc, contribute about 5% of the total patents filed from India. Key areas where patents filed by universities include robotics and embedded computing. Experts conclude that filing of patent applications by

universities reflect a trend that the leading force behind the innovation is spearheaded by students under guidance from professors [12].

The need for innovation management system arises due to the fact that research and development activities experience problems with cohesion when their function reaches a certain size. When the function grows or expands over a certain level, it is important to have a systematic and structured system in place to guide development efforts and to keep all stakeholders to focus in the same direction. However, the adoption of a formalized system may conflict with the need to maintain responsiveness and flexibility. This is found to be particularly significant when team members are geographically distributed. To address the above problem we embed cloud based technologies in the proposed support system.

III. PROPOSED SUPPORT SYSTEM MODEL

A. Overview

We present here the case study at Chitkara University, Chandigarh, India, where we have identified the need, and propose and debate a support system that can be adopted by other young academic institutes for managing innovation at starting phase. We take clue mainly from one of the earliest innovation management systems developed by William Denny at his shipyard in Dumbarton, Scotland called 'Rules for the awards committee to guide them in rewarding the workmen for the inventions and improvements' started in 1880 and, eventually was successfully adopted across England [4]. We emphasize and debate that the innovation model must enable meaningful, timely, and easy-to-use measurements of performance and capabilities to optimize the use of resources, to adjust the focus of activities, and to ensure that the competitive objectives are achieved.

B. Objectives

At the nascent stage the main objectives of the support system for innovation management at young academic institutions can be summed up as follows:

- To create a continuous stream of ideas to be tested and selectively implemented.
- To keep innovators free from legal procedures related to the process from idea inception till patent filing.
- Facilitating the innovators in research by providing infrastructure and economic assistance.
- Awarding the best idea of the month to inculcate a healthy competitive model into innovation model.

The major identified long term objectives in managing the incoming ideas is

- Building and sustaining a large pool of intellectual property
- Creating more enterpreneurs and incubating more commercial ventures
- Finding and promoting newer technologies, processes and products for nation building

C. Process

For facilitating the innovation management process, an office of patent facilitation and licensing (OPFL) can be setup with a nominated faculty member as a coordinator of OPFL. OPFL will be aligned with third party patent attorney for providing help during filing and legal matters related to the patents. A translational research lab will be established in alignment with OPFL for bridging the gap within the research and ideas for promoting interdisciplinary research. The expertise will be available in translational lab to provide innovator with infrastructure and learning resource for continuing his research in interdisciplinary fields. The process of conversion of ideas into patents is shown in fig.1.

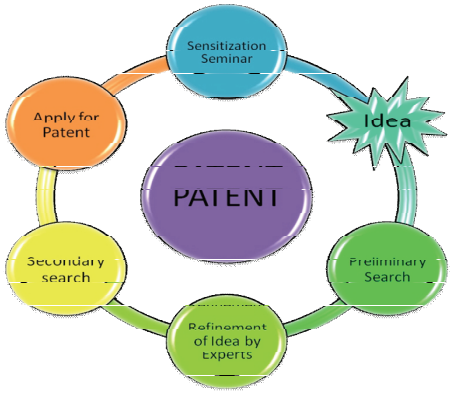

Fig.1 Innovation Management process

The process will be involving innovators, coordinator (OPFL), Patent Attorneys and experts at translational research lab. The innovators will be facilitated at every level of innovation management process for enrichment of their ideas regarding innovation. The main aim of the process is to provide the innovator with a conducive environment in which he can focus on his innovation and all others matters regarding infrastructure, money and legal formalities will be looked after by OPFL. The brief outline of the process along with role of concerned authorities involved is given in Fig. 2

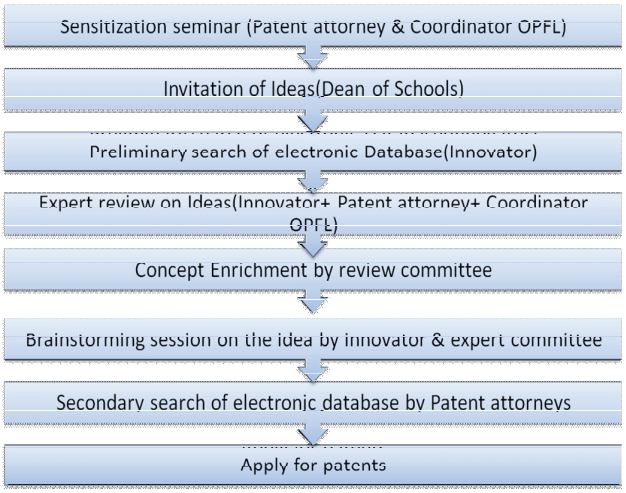

Fig 2. Innovation Management process with roles and responsibility

The office will be facilitating the Innovators in:

- Refinement of Idea to be patented through review by experts
- Searching of Patent Databases for eliminating anomalies
- Expert legal advice throughout the process of patenting by hired third party
- The office will seek third party assistance for all the legal formalities regarding the patent
- Government fees and any other charges will be bourne by the institution

The cloud technology will prove beneficial as we can administer all the process centrally. All the innovators and experts can be kept in a pool using cloud based technologies. The exchange of documents between the innovator and patent attorney will be using cloud technologies for required validation in any future event.

D. Anticipated Impact

The overall process will be supporting innovation process with cloud base technology and will present some significant benefits for young academic institution as under:

- Find more ideas at a higher level of quality by expanding the innovation pool.
- Increase the visibility of ideas so that contributors with different skills and knowledge can help to identify and improve the best ideas.
- Manage complex organizational innovation portfolio with greater governance and precision using social software for key information.
- Ensure effective innovation resource management so that the best ideas make it to the patents and increase the intellectual property of the university
- Integrate innovation process using cloud based technology to ensure that everyone can innovate wherever they are, whatever they're doing.
- Encourage the innovators by keeping them away from all the legal and monetary aspects of the process so that they can primarily focus on the knowledge aspect.

This process of innovation is envisaged to help the innovators with an expert guidance at every step of the process. The innovators would be getting help from the experts even if they are not aware of all the dimensions of their innovation and are having a vague idea about how to implement it. The innovators would also be provided with financial support and guidance and also the academic resources and infrastructure of the organization at full perusal.

IV. CONCLUSION

Academic Institutions need robust and simple-to-implement models for the management of innovation activities – models that are capable of binding various aspects of the innovation domains: ideas, processes, products, services, organization itself, people, and business strategies. The innovation model must enable timely and easy-to-use measurements to ensure that the innovative objectives are achieved. The objectives of the innovation management process should be measurable and implementable.

The proposed support system framework will provide academic institutes with an effective methodology for innovation management. The methodology is straightforward and easy to apply. The proposed model will provide an at-a-glance visual map capable of pointing the progress of ideas to innovation at any stage thus enabling the key stakeholders to act in an informed manner, with judicious innovation strategies and well-targeted activities to bring about tangible results most efficiently.

We are at early stages of implementation of the proposed system at Chitkara University, Punjab. The anticipated impact of proposed system is reflected in the increased flow of incoming ideas for patents. We have received more than 100 ideas in first month of the implementation and are in process of proposed innovation management system.

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