

## Managing Knowledge Transfer in Life Sciences

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It is an accepted fact that innovations emerge from the university system, and are adopted by the industry--a process referred to as "bench to bedside". As government supported institutions, there is the need to meet the expectations of the public, through new technologies, new improved processes and methods. The process through which these expectations are met is called "technology transfer".

While new scientific discoveries have thrived in these institutions, there has been a lack of direction when it came to transferring these discoveries to the market. In the new life sciences era that is marked by convergence of scientific disciplines--computer sciences, engineering, life sciences, mathematics, and statistics--technology transfer becomes an interesting challenge.

### **Technology transfer in the Indian public research system**

In 2005, India adopted a product patent regime. Over the past three years, the focus in the public sector has been on patents and the need for IP protection.

In 2006-2007, Council for Scientific and Industrial Research (CSIR) had a 20 percent share of the total patents granted to Indians--with 281 granted patents. These patents cover a broad spectrum--from drugs to traditional medicine to aerospace engineering. Some of the CSIR institutions were successful in transferring the technologies to the private sector. Central Food Technology Research Institute (CFTRI), Mysore, has been a pioneer in technology commercialization. In other CSIR institutions, the success has been pretty low, with occasional success stories emerging.

In 2006, the Indian Council for Agricultural Research (ICAR) adopted a new technology transfer/ commercialization policy and guidelines to support the same. As part of the new policy framework, ICAR has established Institute Level Technology Management Units (ITMC) and Zonal Institute Technology Management Committee (ZTMC) to identify and nurture innovations at the grassroots level. Over the past three years, the focus has been on conducting sensitization workshops for selected scientists. It is too early to talk about successful technology commercialization stories in ICAR, except for the animal vaccines.

The Indian Council for Medical Research (ICMR) and Department of Biotechnology (DBT) have technology commercialization policies in place, and some success in transferring technologies.

In 2006, ICMR reported 46 technologies for commercialization by the private sector. The partnerships with Therion Biologics and Shantha Biotechnics have already been recognized as case studies for encouraging innovative collaborations with the private sector.

The patent cell within the DBT has facilitated more than 100 Indian and foreign patents, of which 12 have now been granted.

### **Structuring industry-academia relationships**

Universities and public research institutions in India need to adapt to the new emerging policy environment.

There is a need for the public research institutions to understand that relationships with the private sector are dynamic in nature, and never static. It is imperative to ensure prompt reporting of research results and in adhering to the agreed milestones in collaboration programmes.

The private sector needs to understand the constraints under which academic scientists and research institutions work. They need to work on agreements that benefit both the parties, and work with the public sector in alleviating their fears of entering into relationships with the industry.

### **Concerns associated with technology transfer**

The current debate in India on Intellectual Property Management revolves around the "apprehensions of the private sector" and the "unchanging mindset of the public sector" towards each other. One of the hurdles for long-term relationships has been attributed to a "lack of trust" between both the sides.

From the inner looking mindset of the public sector in the 1990s and earlier, the new policy initiatives at the public research system hold promise. It is an acknowledged fact that collaborations are the step forward for the public sector system. As recent success stories demonstrate, the public sector is taking healthy strides to translate basic research into success stories.

While patent filings have been on an increase, the true success of judging the IP lies in how many of these patents translate into successful technologies. This is especially true for CSIR, and it remains to be seen on how it goes about commercializing its vast patent portfolio.

### **Facilitating knowledge transfers in India**

In 2005, CSIR, ICAR, ICMR and DBT established a forum to engage in critical dialogue on technology transfer. The Society for Technology Management (STEM) has, over the past three years, seen more than 100 new members joining it. Apart from the Indian public research system, the STEM today includes membership from public research systems from South-East Asia and the Middle East. It also includes membership from leading life science companies in the United States, Europe and India.

Many scientists from the public sector have acknowledged the role of STEM in enhancing their IP awareness and of their knowledge in technology licensing, licensing agreements, and dissemination of research results.

The STEM is currently engaged in developing metrics for technology transfer in Asia, with a key focus on India.

### **Future Steps**

Some key steps that need to be taken include:

- Generating a broad research dataset that establishes critical linkages along the discovery-to-commercialization continuum for establishing critical benchmarks.
- Minimizing bias in industry sponsored research, by prompt disclosure of the source of research support in scientific publications and conferences.
- Formulating conflicts of interest policies at the institution level. IISc and IIT Bombay have such policies in place, as part of their IPR Policy.
- Identifying key issues and challenges around technology transfer and commercialization, and help define India's policy position.
- Active collaboration amongst our apex research organizations--CSIR, ICAR, and ICMR to review their institutional policies and best practices, and identify ways to enhance their impact in technology transfer.
- Benchmarking best practices, active processes, success stories, will help make technology transfer and commercialization happen better, faster, and with fewer obstacles.

For the benefits of academic-based life-sciences research to percolate to the common public through effective knowledge transfer mechanisms, steps need to be taken to address concerns regarding: current scientific research priorities, structuring academic-industry relationships, and above all, the policy initiatives and enabling mechanisms for technology transfer. Addressing these concerns will ensure that the public funded research realizes its full potential, and justifies the huge public investment.

Sathguru Management Consultants is the chosen partner for CSIR, DBT, ICAR and ICMR, and continues to work with them on framing policies and for successful transfer of technologies to the marketplace. Sathguru is a pioneering technology

consulting firm with key expertise, many successful stories, and over twenty six years of experience in technology transfer in South and SE Asia. As the only such firm in South Asia, Sathguru works closely with the public and private sector in identifying, nurturing and managing successful knowledge transfers, and has over 30 tech transfer success stories in the past decade. Currently, Sathguru is in advanced stages of commercialization for 5 technologies from the public research system. It is also engaged in in-licensing of new technologies for ICAR.

*The views and opinions expressed here, and any errors therein, are solely those of the author and not necessarily reflect the views of Sathguru.*