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Bridging the industry-academia divide

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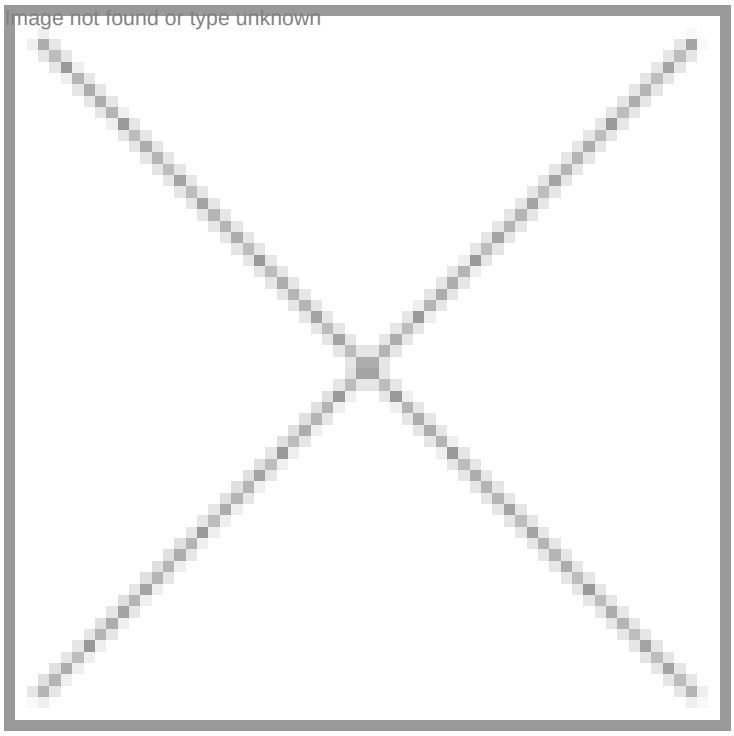


Bridging the industry-academia divide

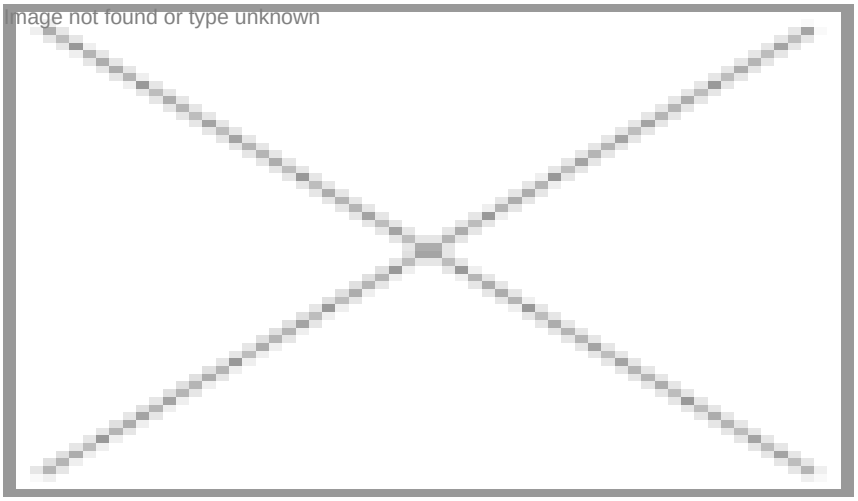
The DBT is making a move towards better technology management in life sciences in publicly funded research organizations in India.

In order to boost the synergy between the industry and academia, the department of biotechnology (DBT) is currently working on the concept of technology management units to leverage the applied research and technologies developed by organizations/institutes in the public domain. This is indeed a welcome move.
BioSpectrum spoke to some of the key players in the biotech industry and academia to seek their opinion and suggestions.

The idea

The technology management units will aim to fulfil the innovation gap in the country and act as a bridge between the industry and academia. It will boost commercialization opportunities to researchers, entrepreneurs, act as a resource centre for innovators and be focal point for the industry and researchers for further technology development.

The USP of these units will be that they are solely focused on the life science technology management and will facilitate in commercialization of the technologies to the industry.



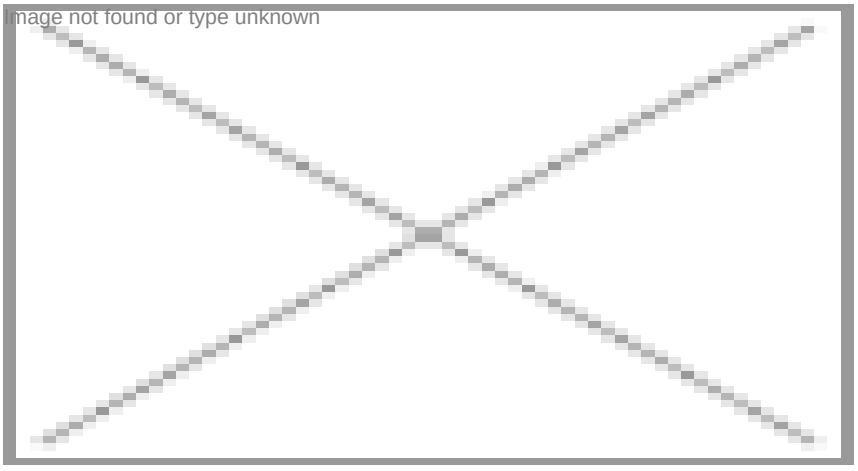
The concept proposes to have a decentralized structure and will emphasize on local capacity building-strengthen technology transfer units in institutes where they exist and open such units in organizations/institutes where they are absent, driven by a HQ. The individual units will have a strong regional flavor to appreciate and capitalize on the strengths of the local institutes/research organizations and universities.

It will create business opportunities for scientific innovation and would also help in spinning out new companies, in licensing of technology to existing companies or even facilitate in setting up new companies in case of stand-alone technologies.

In addition to synergizing and enthusing the national biosciences scenario, the organization could also partner/tie-up with other global organizations engaged in similar activities. The unit will promote technology, its transfer and commercialization; IP facilitation and handling IP infringement; Developing technology evaluation mechanisms; Impart training and capacity building mechanisms; Organizing educational and workshops and seminars; Develop policies and mechanisms for technology transfer; provide a ready reckoner of available technologies available with the institutes and be in sync with the needs of the industry; create opportunities for entrepreneurs to network potential investors, partners, service providers, etc; facilitate interaction with VCs, law firms and corporations among others.

A right step forward

Lauding the initiative, Dr K VijayRaghavan, director, National Centre for Biological Sciences (NCBS), Bangalore, said, "Ten years ago, this would have been an interesting idea that could not be implemented. Five years ago, this would have been a good idea that only a few could implement. Today this is a great idea that no half-decent place can afford not to implement. The DBT will, I am sure, take this forward in an inclusive and implementable manner."



Supporting the concept, Dr V Prakash, director, Central Food Technological Research Institute (CFTRI), said, "This is a good move and a big advantage to the public-private partnership model. We know this because the CFTRI does a lot of research in biotechnology, food science and life sciences and from experience we can tell that it is not actually easy for science to interface with the industry. That is why about 40 years ago, CFTRI established the technology transfer and business

development department for building a bridge between the research being done at the institute and the industry requirements. This has been very successful in transferring a number of technologies to the industry and is a single technology-window from the institute to the outside world."

According to Varaprasad Reddy, CEO, Shantha Biotechnics, "The idea of having technology management units within an organization/institute is excellent as it could function as an intermediary between the research organization and the industry. Such units would also be a one-stop unit for the industry to interact with, therefore would save on time. The National Institutes of Health in the USA has a technology transfer unit, which facilitates the transfer of technologies developed at NIH to different industries." However, he further added, "Although many of the academic organizations in India do have similar units already functioning, they seem to be more bureaucratic in nature. The industry would definitely love to work with such units if they function in a less bureaucratic way and ensure proper and complete flow of information to the industry."

Concurring with Reddy's concern regarding the style of functioning of these units, another industry leader, Anuradha Acharya, CEO, of Hyderabad-based Ocimum Biosciences, said, "I think these units are a great idea as it will facilitate the differences between academia and industry. However, I have some doubts on the execution as there is currently a vast gap between the two. Nevertheless, this would be a great starting point to develop innovation in India and facilitate the fledgling Indian life sciences industry. The execution of these units could be run as a private sector initiative."

Reddy also pointed out some essential criteria for the success of this venture. "In order to be effective, the technology management units in an organization should function: Independent of the institutional bureaucracy; Should ensure repeatability and the robustness in the technology; Should ensure technology to be free from IP infringement etc; Should ensure smooth transfer of technology to the industry; Should ensure regular trouble shooting during the process of technology transfer; and also after the complete transfer should work with the industry till the successful commercialization of the technology/product."

Giving examples of such existing units in the Indian Institute of Science (IISc), Prof. G Padmanaban, distinguished biotechnologist, Department of Biochemistry, IISc, Bangalore, commented, "The concept of technology management units is welcome and overdue. Many Indian Institute of Technologies (IITs) and IISc do have such units. For example at IISc, we have two units, the Centre for Scientific and Industrial Consultancy (CSIC) and the Society for Innovation and Development (SID). In a broad sense, CSIC deals with short-term projects with industries, where as SID deals with long-term collaboration with industry. Most national labs would also have such units, although their contribution to promotion of locally developed technologies may vary. These need to be proactive in the sense of scouting for appropriate partner industries to leverage the technologies."

Such units can improve their efficiency if they have a machinery to be fairly conversant with what is going on in the parent institution. As most often the existing units tend to become independent cells or departments and perform clerical functions. It would also help if these units could also provide help in identifying and evaluating potential discoveries for IPR protection and also take it further to generate documents for pat enting, pointed out Prof. Padmanaban.

"Many universities in India may not have even rudimentary cells for technology management as conceived and they would benefit. The demands on such units would indicate that a wide-ranging expertise from science to financials needs to be available at these units and obviously most of it has to come from within the institution. If an appropriate structure for the units with a good, committed leader for each can be evolved, it would fill a long standing gap in the lab to land transfer," he added.

Voicing the industry requirements, Dr Ashesh Kumar, general manager, biotechnology, of Mumbai-based M J Biopharm, said, "The academic research institutes may also ask industry of their immediate, mid term and long term technology needs and this may be considered by academic research to fine tune their applied research. In addition, the roles and responsibilities of these technology management units should be clearly defined and should include regular interaction with local/national biotech industry players."

Citing the example of such existing units in other countries, he added, "Most of such units in Israel, Cuba, Europe and the US are termed as technology transfer group and many of the academic institution websites in these countries, which are successfully doing the tech transfer, make a regular update on what is available and what is coming and in what time-frame. This will be very important for the industry so that they plan their investments accordingly. Likewise the Indian institutes should also focus on regular and quick update on their websites."

Good concept but not applicable

However, some in the industry feel that though it is a good idea, this is not what the country needs at the moment. Naveen Kulkarni, CEO of Bangalore based Polyclone BioServices, commented, "The concept of technology management units is a

very good idea, but this is relevant where there are ample technologies and discoveries available. In the current Indian life science industry most of the technology is either imported or adopted from an overseas collaborator. Before this unit can become relevant and have a role to play, we need technology development activities and this can happen only if there is enough basic research in the academia and applied research is encouraged in the industry. This trend is just beginning in India and is still less than a year. It requires at least another five years to assess the benefit of today's activities. There are many more hurdles to be cleared before we get there."

Raising some tough but relevant queries, he asked, "What is the possibility of a company like Affymetrix or Illumina coming up in India? Do you think India can ever produce the Ciphergens, Sequenoms which have altered the course of global biotechnology industry. When was the last time India produced a technology that made a serious impact in the life science industry?"

"My request is that let us focus on building the core competency and then we can think about managing that. Today we are talking about painting the wall without the wall," he added.

Explaining his reservations about the success of such a venture, Dr JN Verma, CEO of Haryana-based Lifecare Innovations, said, "At present the Indian biotech industry can be divided into three groups-the start-ups, mid-size companies set up in the last five-10 years and the big companies. Now the big companies generally liaison with other multinational or foreign-based companies. The mid-size companies are very cagey in revealing their future plans and the start-ups do not know whom to contact, the required procedure, etc. Thus, this kind of venture will not benefit anyone in the industry. Another stumbling block in any government set-up (if this is set-up is under a government framework) is the bureaucratic system of functioning. This is big reason why the industry is hesitant about such partnerships."

Instead proposing an alternate model, he suggested, "It will be more useful to have a consortium, in the life sciences segment where the Indian life sciences/biotech diaspora both in India and abroad can be the stakeholders. This can be linked to the institutional/academic sector as well which are a rich seat of libraries and instrumentation. In this way a public private partnership research centre can be developed which has the potential of getting a lot of business both from the Indian companies as well as from abroad. Hence a system can be evolved in which the scientific community/industry has not only interest but also a stake."

Although there may be differences in the exact model to be adopted for better linking of the industry and the academia, it is noteworthy that a transparent, flexible and dynamic body will go a long way in synergizing and promoting both the pillars of the Indian life sciences sector.

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