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About Us

Society for Technology Management (STEM) is a not-for-profit organization which provides facilitative environment for successful technology transfer processes and promotes best practices in technology management.

STEM provides an environment that is supportive of entrepreneurship and networks with referral links for information and other resources. It contributes in the professional development of technology management professionals in life sciences, food sciences, engineering sciences, physical sciences, etc. It also provides appropriate guidance and assistance to inventors and corporations in matters of intellectual property.

- STEM offers guidance and assistance to inventors and corporations on matters of intellectual property.
- STEM increases general awareness on intellectual management and engages in capacity-building among technology management professionals both in India and neighbouring countries.
- STEM operates as a catalyst in the professional development of technology managers for the commercial benefits of innovations.
- STEM allows genuinely interested Indian researchers and technology experts to network with global technology managers.
- STEM organizes annual meetings and seminars to benefit technology transfer professionals nationwide.
- STEM promotes economic growth of its constituent members.

Presidents Message

The STEM annual gathering was exciting in many ways. There has been a greater level of participation by the private sector and there was ample opportunity for technology managers from the public and private sector to interact effectively and understand from one another the effective ways to cooperate and consolidate technology transfer process. During the recent months, I have visted a number of research organizations in the private system and it is heartening to see that the Indian enterprises and international enterprises based in India are creating, nurturing and augmenting their research capacity considerably within the country. It is also timely to witness emerging innovation platforms that encourage early stage innovations and attain commercial fruition through funding and mentor support.

The Biotechnology Industry Partnership Program of the Department of Biotechnology is one such initiative. There is now significant opportunity for technology transfer at upstream and downstream levels with unique partnerships forged within the public and private system. With accelerated technology transfer initiatives and potential opportunities for multi-fold increase in home grown technologies, there is a considerable need to augment the human capacity to protect, manage and disseminate technologies. The need for quality technology managers can be accomplished only by creating awareness at the early phase of the human education.

STEM is glad to engage in this process of creating capacity within the country and my colleagues on the Governing Board of STEM have drawn a clear strategic plan in this regard. We would like to see proactive engagement among professionals from the public and private sector to foster professional quality, networking opportunity and peer learning among the technology management professionals.

The STEM Governing Council will be soon launching an accreditation process for technolgy management professionals and over the medium term integrate this accreditation process with the globally emerging Registered Technology Transfer Practitioner (RTTP) recognition that several of the global technology transfer associations have forged recently. STEM members will soon hear about this process of securing Fellowships and Associateships that will enhance the professional standing of the members.

I wish you all a happy and prosperous 2011.

With best wishes,

K. Vijayaraghavan

The 30th Anniversary of Bayh-Dole: Implications for India

Ashley J. Stevens

In December 2002, the normally stiff upper lip English weekly *The Economist* gushed[1]:

> Possibly the most inspired piece of legislation to be enacted in America over the past half-century was the Bayh-Dole act of 1980. Together with amendments in 1984 and augmentation in 1986, this unlocked all the inventions and discoveries that had been made in laboratories throughout the United States with the help of taxpayers' money. More than anything, this single policy measure helped to reverse America's precipitous slide into industrial irrelevance.

The savior of America? Heady stuff indeed.

So, what is all the hoopla about? What on earth is Bayh-Dole? Why is Senator Birch Bayh remembered not for his substantial role in fundamentally changing U.S. society—he authored the 25th and 26th amendments to the Constitution (respectively, changing the rules for the Presidential and Vice Presidential succession and lowering the voting age to 18) and Title IX, the law which, by changing how women are treated in college athletics, transformed women's role in society - but instead for an obscure law which changed the way universities manage their patents?

The Act was born of desperation. The US economy was going through a painful transition. Germany and Japan were taking over America's traditional strength in manufacturing, and Congress turned to innovation as the way out. Bayh-Dole was conceived of as a way to integrate academic research into the mainstream of the US's innovation ecosystem.

Prior to Bayh-Dole, the government owned any patents resulting from federally funded research and would only grant non-exclusive licenses to patents it owned, so no company would take the risk of investing in developing very early stage academic technologies if their competitors could come along later, after the pioneer had proven the technology's viability and get a license on the same terms without taking the same financial risk. Companies wouldn't touch academic research that had been federally funded.

At its heart, therefore, Bayh-Dole was a competitiveness and economic revitalization initiative.

What is the Act and isn't the Act?

The Act was remarkably simple. It gave institutions the unambiguous right to claim title to inventions made with federal funding. The funding agency couldn't deny the request unless it had made a "determination of exceptional circumstances" in advance. Disclosing the invention and claiming title had to be done within defined time limits.

A remarkably simple, single set of rules and conditions governed all funding agencies. The institutions had to:

- License the patents rather than assign title to them.
- Disclose the government's interest in patent applications and notify the government before abandoning any patent application.
- Share the income they received with the inventors - how much to share was left up to individual institutions.
- Use any residual income retained by the institution for research and education.
- Grant a royalty-free non-exclusive license to U.S. Government for its own use.
- Require licensees to manufacture products in the U.S. that were to be sold in the U.S.
- Give preference to small businesses.

As a final safeguard, the government retained the right to grant a compulsory license in the public interest if the invention was not being practiced - the "march-in" provision.

The Act provided no new funding for these new commercialization responsibilities, a topic we shall return to later. On balance this was probably a positive at the time, since there was no need for the Act to be periodically reauthorized when new funds were appropriated. There was therefore no opportunity for the provisions of the Act to be tinkered with and institutions have been able to make long term investments in implementing the Act. As a result, a body of licensing expertise and practical experience has been developed within academia over the past thirty years.

The Bayh-Dole Act took the government completely out of the technology transfer picture and gave all responsibility to the university. Apart from requiring certain reports, the only way the government could become involved in technology transfer was through the march-in provision. There have been two cases in which a march-in has been requested and both were denied. Two new petitions are currently pending. The NIH has provided guidelines on how it would like to see research reagents and genetic tests licensed, but the Association of University Technology Managers (AUTM) has taken on the role of setting academic licensing norms and best practices.

Two provisions in the Indian Bayh-Dole Act as currently drafted contravene this principle and should be removed. The first is the ability of the government to decide to audit the institution and send them the bill for the audit. The second is the government's ability to require a professor to repay a grant, with interest, if the government isn't happy with the results generated. This will be a massive disincentive for scientists to participate in the process. The results of science are completely unpredictable.

What Bayh-Dole Did

Was Bayh-Dole as miraculous as The Economist thinks?

The Bayh-Dole Act was quite simply about who should own and manage academic inventions and who should share in the fruits of their success. Before Bayh-Dole, inventions made with federal funding, which accounts for 70 percent or more of the research funding at US universities, were owned by the government.

Bayh-Dole gave ownership of inventions back to the universities that created them and gave universities the freedom to negotiate license terms that would maximize the probability of successful

1. Innovation's Golden Goose. *The Economist*, December 12, 2002

development of the technology. Essentially, it created the "institutional ownership model" of academic inventions.

The only alternative is to let professors own their inventions themselves - the so-called "Professor's privilege", which was historically the predominant model in Europe and the rest of the world outside the U.S. and the UK, where the National Research and Development Corporation had a monopoly on British academic inventions until Margaret Thatcher abolished it in 1988 Observing the long term success of the institutional ownership model in the U.S. and UK, European countries started changing over to the institutional ownership model in the mid-1990's, and Sweden is now the only major European country where the professor's privilege model is still in place.

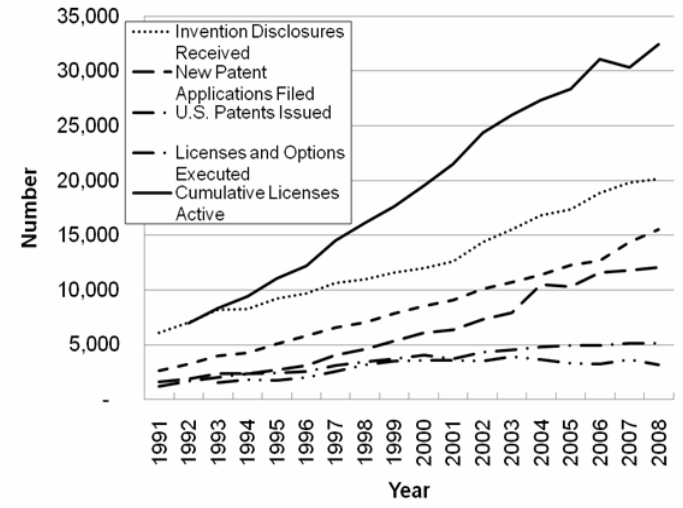
The professor's privilege model has numerous drawbacks, and would be totally wrong for India:

- Professors would be reluctant to pay for patent protection out of their own pockets, and their inventions would go unprotected and undeveloped.
- Professors everywhere are outstanding at identifying the practical applications of their science and how to develop them, but most have no experience in business.
- There are serious conflict of interest concerns with allowing publicly funded laboratories to operate for the personal benefit of professors. For instance, how will the professional development needs of postdoctoral fellows and graduate students be safeguarded?

The Impact of Bayh-Dole

So, what have been the impacts of Bayh-Dole?

Universities responded and started creating offices of technology licensing ("OTL"). Only twenty three universities had OTL's prior to Bayh-Dole. Starting in 1983, the rate of creation increased dramatically and today, all major research institutions have an OTL.



The level of basic technology transfer activity - invention disclosures, patent applications, patent issuances, licensing - has increased steadily too. The Association of University Technology Managers (AUTM) has conducted an Annual Licensing Activity Survey since 1991. The above graph shows how key measures of activity have increased since the inception of the Survey.

Back in 1980, the sponsors of the Act were concerned that the results of America's publicly funded scientific research were not benefiting the public from either a quality of life or an economic development standpoint. This has changed dramatically over the past 30 years:

- As early as 1992, stories started to appear in the business press talking about how regions anchored by research universities were becoming centers of high tech job growth[2].
- An entire industry, biotechnology, was created from university start-up companies[3].
    - 76 percent of biotechnology companies have a license from a university
    - At least 50 percent of current biotech companies got their start as a result of a university license[4]
    - These biotech companies represented over 1.42 million jobs in 2008[5]
    - The bioscience sector represents an employment impact of 8 million jobs, with 5.8 jobs created for every new bioscience job[6]
- 154 FDA approved drugs have been brought to market since 1980 which were discovered in whole or in part at U.S. public sector research institutions[7].
    - From 1990 - 2008, 9 percent of all drugs approved by the FDA, and 21 percent of the most innovative drugs approved by the FDA, were based on discoveries at public sector research institutions
- Well known products such as the web browser, email programs that can attach documents, the V-chip, hollow optical fibers, the nicotine patch, the PSA test, Google, the Honeycrisp apple, cochlear implants, lightning detection technology, the Hib vaccine, improved guardrail systems and cell phone technologies all have their roots in university research[8].
- From 1980-2008, 6,652 start-up companies were formed and 3,381 of these companies were still operating at the end of 2008[9].
    - 72 percent of these companies had their primary place of business in the institution's home state

2. "Hot Spots -- America's New Growth Regions." *Business Week*. October 19, 1992.
3. *ibid.*
4. "Technology Transfer & the Biotechnology Industry." *BIO 2009 Member Survey*
5. "Battelle Technology Partnership Practice." *Battelle/BIO State Bioscence Initiatives Report*, 2010
6. *ibid.*
7. Stevens, A. J., J. J. Jensen, et al. (2010). "The Contribution of Public Sector Research to the Discovery of New Drugs and Vaccines." *Nature Biotechnology* submitted.
8. AUTM, *The Better World Project*, www.betterworldproject.org.
9. AUTM, AUTM U.S. *Annual Licensing Activity Survey FY 2008: Survey Summary.*

- Every state, except Alaska, has had at least one start-up company formed as a result of licensing technology from university research
- In 2008 alone 595 new start-up companies were formed - 11 every week
- In a study of just 100 university spin-outs, total employment at 81 of the companies was 167,000, and total revenues at just 31 of these companies were $95 billion in 2008

- Another study found that from 1996 to 2007 university licensed products created over 279,000 jobs[10] and that academic technology transfer contributed as much as $187 billion to U.S. GDP between 1996 and 2007[11].

Lessons for India

Funding Technology Transfer

The income earned by US universities from licensing has increased substantially, from $7.3 million in 1981[12] to $3.4 billion in 2008[13]. Paradoxically however, despite this high level of income, technology transfer is still a money losing proposition for most universities. Two factors account for this:

1. Income is highly concentrated in a few "big hits". For instance, 24 percent of the $3.4 billion in income reported in 2008 was reported by Northwestern University, which had discovered Lyrica, licensed it to Pfizer and monetized part of its royalty stream in 2008. City of Hope Hospital, which has patents on key techniques for producing monoclonal antibodies, reported 12 percent of the total, and Memorial Sloan Kettering, Children's Hospital of Philadelphia and the University of California system reported the next 16 percent. The final 47 percent was shared among the remaining 180 respondents to the Survey; and
2. The majority of the income that is generated - typically 60-80 percent - is distributed to the inventors for their personal benefit and to the inventors' laboratories and colleges to be spent on research (both of which the Bayh-Dole requires) to incentivize them to participate in the technology transfer process. Only a small portion is used to offset the costs of technology transfer.

As a consequence, a recent study[14] showed that, in 2006, 52% of U.S. institutions spent more on technology transfer than the entire income they generated from the activity, while only 16% kept enough of the income they generated to cover their costs.

10. D. Roessner, J. Bond, S. Okubo, M. Planting, *The Economic Impact of Licensed Commercialized Inventions Resulting from University Research, 1996-2007*. Final Report presented to the Biotechnology Industry Organization, September 9, 2009.
11. *ibid*.
12. Stevens, A. J. (2003). "20 Years of Academic Licensing - Royalty Income and Economic Impact." 38: 133-140.
13. R. Tieckelman, R. Kordal and A. Sanga. *AUTM Licensing Activity Survey FY2008: Survey Summary*. Deerfield, IL, Association of University Technology Managers.
14. Abrams, I., G. Leung, et al. "How U.S. Academic Licensing Offices are Tasked and Motivated - Is it all about the money?" *Research Management Review* 17.1(Fall/Winter 2009).

The Indian Bayh-Dole Act states as one of its objectives as reducing the need of universities for funding. It will not, and this is the wrong reason for passing the bill.

The correct reason for passing the Indian Bayh-Dole bill is as a stimulus to the Indian economy. Ninety five percent or more of the economic impact from technology transfer is outside universities, in the private sector, reflecting the enormous private sector investment usually needed to take an embryonic academic technology from the laboratory to the market place.

India is a highly innovative country, but its innovation has been incremental. It excels at driving down costs, to levels that the West cannot comprehend. But India hasn't generated breakthrough, disruptive innovations, the way, say, Nokia in Finland or Research in Motion in Canada have, that have progressed to world market domination.

By harnessing the creative talents of its public sector scientists, and facilitating their interaction with their private sector counterparts, and by creating a robust and transparent intellectual property regime, India can start to move in this direction.

Dr. Stevens, D. Phil (Oxon), CLP, is Special Assistant to the VP of Research at Boston University, where he is tasked with exploring the faculty's interest in launching a university-wide academic program focused on the role of intellectual property and the evolution of models for the translation of ideas and knowledge into economic development. He has spun out over 50 companies based on the University's research, a number of which have raised substantial amounts of capital.

He is also Senior Research Associate in the Institute for Technology Entrepreneurship and Commercialization in Boston University's School of Management, where he teaches two graduate-level, inter-disciplinary courses on Technology Commercialization.

He was the recipient of the Bayh-Dole Award at Association of University Technology Managers 2007 Annual Meeting and became President of AUTM in March 2010.

The challenge Facing University Startups in the USA

Paul M. Swamidass

Introduction

About 200 US research universities, who are members of the Association of University Technology Mangers (AUTM) are a significant source of high-technology inventions/patents as a result of active faculty and graduate student research efforts. Since the Bayh-Dole Act of 1980, US universities have ownership to such inventions from their labs.

But, how well are the universities taking advantage of the provisions of this Act? One aspect of this question was addressed empirically in one of my earlier studies on university technology transfer (Swamidass and Vulasa, 2009). An analysis of the Association of University Technology Managers periodic Licensing Activity Surveys of 1995-2004 (annual surveys by AUTM, and Bostrom and Tieckelmann, 2007) indicate that the annual income generated by licensing university inventions was 1.7% of total research expenditure in 1995 and 2.9% in 2004.

Some experts consider this and the associated rate of commercialization of university inventions to be too low.

License Income Growth During 1995-2004

In our study (Swamidass and Vulasa, 2009), using AUTM data, we reported that license income to universities was $299 million in 1995 and grew to $1,099 million in 2004; an annual per university growth rate of 12.2% (compounded) or 20.2% (simple). License Income as a percent of Research Expenditure has grown from 1.7% in 1995 to 2.9% in 2004; a growth rate of 6% per year compounded over the 9 years.

Data

Our study (Swamidass and Vulasa, 2009) collected additional data from 26 research universities through a survey sent to 99 randomly selected US/Canadian research universities associated with the AUTM. The sample was randomly selected from AUTM listing of research organizations accessible in late 2006.

Staffing

The survey queried the UOTTs about the total number of full-time equivalent (FTE) employees. The results show that, (1) 54% of the universities have two or less staff, (2) 72% of the respondents have three or less staff, and (3) 12% have 10 or more FTEs; these 12%, at the top end, are more generously staffed for commercializing university inventions. About 75% of the respondents reported that they have current shortage of staff measured in FTEs. Sixty-nine percent reported either one or two FTE shortages. These are self-reported shortages, with no verifications available to the authors.

These results provide evidence that a sizable percentage of UOTTs do not have sufficient non-legal, technical and legal staff to process inventions. The shortages reported above may be an underestimate if we consider university inventors who balk from reporting inventions because of the slowness of processing by understaffed UOTTs.

Budget

In regard to UOTT budgets, approximately (1) 24% of the respondents said that the budget allocated by their universities is adequate to meet UOTT needs, (2) 20% reported that the budget is 11-25% under their need, (3) 20% reported that the budget is 26-40% under their need, and (4) 28% reported that the budget is more than 40% below their need. It appears that most UOTTs perceive that they lack sufficient funds to process all the university inventions effectively; there is no way of verifying if their perception is accurate. It is difficult to estimate the total effect of the budget shortages on faculty disclosures of inventions because, as UOTT backlogs mount, fewer researchers in the university would be motivated to disclose their inventions to their on-campus UOTT. The budget influences the number of personnel employed in invention processing, invention marketing, staff training, technology evaluation and technology transfer.

Marketing University Inventions

In 2007, a dean of a large college of engineering with a sizable research budget wondered why inventions from the college have not produced any meaningful stream of income. One reason for the problem is captured in the observation by Dr. Das, CEO of Transwitch, a high-technology entrepreneur himself, "high technology is …one of the most difficult things to market" in a lecture at Auburn University, and he added, "they do not teach high-tech marketing in business schools." A second reason is the fact it takes considerable time to successfully license or market good university inventions/patents that do not make business sense (i.e., +ve cash flow) readily. A third reason being the fact that the university inventor may have no pre-invention/pre-transfer ties to a potential industrial user/licensee; in such cases, marketing of the technology is considerably more challenging (UOTT).

Many smaller university technology transfer programs have existed for less than 10 years and therefore it is understandable they have not produced a strong revenue stream yet, and, consequently, many tech transfer programs in universities are not self-supporting; however, they feel the pressure from university administrations to become self-supporting.

New Start-Ups

During 1995-2004, AUTM data shows that new startups grew at the rate of 0.14 per university/year; it amounts to one new startup in seven years per university; perhaps there is much room for improvement here. New startups are considered important vehicles for new technology transfer from universities because startups are the only hope for new technologies shunned by existing firms; yet, university startups are rare.

New startups based on university technologies give economic life to technologies that otherwise would languish on the shelf because: (1) new startups are more likely to license technologies that are "uninteresting" to existing companies with established markets, and (2) existing companies may be threatened by the prospect of losing their current market to the new technology. Such technologies may require years of product or process development by a new startup company. In addition, the most significant hurdle to new university startups is the lack of skills at the UOTT to market the technologies to potential startup entrepreneurs.

The Opportunity and the Challenge

It appears that UOTTs are successful in patenting university IP at a far greater rate since the Bayh-Dole Act. In order to take advantage of the Act, to speed up the commercialization of new inventions, and to improve economic development and entrepreneurial activities, US universities need adequate as well as appropriate invention commercialization capacity.

Most UOTTs lack the resources and competencies necessary, including human and institutional capacity, and skilled staff experienced in promoting a startup business. The mere creation of UOTT without appropriately skilled capacity may disappoint many universities. Several researches have reported that marketing expertise among UOTT staff is poor, but they frequently look for personnel with expertise in "patent law and licensing, or technical expertise." It should be noted that UOTT's role in marketing a technology is lesser if the researcher/inventor has pre-transfer contacts in the business community.

Disproportional Effect of Low Budgets on Marketing of Inventions

It is argued that the shortage of personnel and budgets for the UOTTs could have a disproportionally large effect on the latter stages of commercialization; that is, UOTTs may succeed in patenting the invention but may have limited resources left over for marketing them to potential licensees and investors. Only licensed patents could produce income to universities.

By devoting their limited staff to patent application preparation, at the end of the year, UOTTs may report the number of patents filed/granted, and universities may get a false sense of tech transfer accomplishment by the number of patents granted each year. It is well recognized that only a small percentage of patents get commercialized to produce income. Therefore the need for aggressive marketing of patents cannot be overemphasized.

Staff and budget shortages in UOTTs are likely to result in the failure of inventions reaching potential licensees and investors through neglect. Many university inventions have no established markets, especially when the research leading to the invention is not funded by a private firm. Further, many university inventions are often examples of the "Technology Push" variety looking for a market, and not the "Market Pull" variety where the market is screaming for a new product. The process of marketing Technology Push inventions to entrepreneurs requires at least two important steps in successful marketing:

1. A careful study of all relevant markets and locating a previously unknown potential market space for the new technology, and
2. A carefully projected cash flow for five years with an "investor-friendly" business plan to convince potential investors, who might invest in a new startup. Most UOTTs are not prepared for this task.

In summary, if no existing company is interested in licensing a new invention from the university, it should be selectively marketed to entrepreneurs/investors, who might take it to the market through a new startup. But, to attract entrepreneurs/investors for a startup, high-tech inventions originating from university labs may need market research, target market space/niche identification, new market exploration and creation, translation of the lab result into an "investor friendly" cash flow for a complete business plan, prototype development, lab tests, etc. But, as a rule, UOTTs do not have these skills and capabilities, in-house.

While the need for the commercialization of more American university technologies is clear, new university startups are relatively underused for the purpose; the challenge of forming more successful university startups is formidable, but must be addressed.

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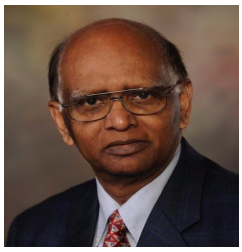

Dr. Paul Swamidass is Professor of Operations Management in the College of Business, and the Director of the Thomas Walter Center for Technology Management in the Ginn College of Engineering, Auburn University, AL, USA. The Center assists the office of technology transfer at Auburn University to commercialize advanced inventions from engineering labs.

An active researcher, he is currently researching the increasing number of new startup businesses using university technologies. He has produced over 80 publications including peer-reviewed journal papers. He conducted research sponsored by the National Science Foundation and the National Association of Manufacturers, USA, on the use of manufacturing technology. This body of research and publications have been quoted or cited in The Economist, The New York Times, The Wall Street Journal, The Asian Wall Street Journal, U.S. News and World Report, and others.

For more, see: http://www.eng.auburn.edu/center/twc/swamidass/

Spin-Out or Out-License? The C-CAMP Experience

Taslimarif Saiyed & Mohan Sridhar

Note: The content of the article is to briefly touch upon the topic, however, specific cases require flexible models like joint venture, strategic partnership etc. Hence, some observations in the article might not hold true in specific cases.

The Centre for Cellular and Molecular Platforms (C-CAMP), a Department of Biotechnology (Govt. of India) initiative, together with National Centre for Biological Sciences (NCBS) and The Institute for Stem Cell Biology and Regenerative Medicine (inStem) form the Bangalore Bio-Cluster. C-CAMP's mission is to act as an enabler of success in bioscience research and entrepreneurship by providing research, development, training and services in state of the art technology platforms. Once established, these technologies are provided to researchers from academia and industry as technology platforms.

C-CAMP has established state of the art facilities in Imaging and Confocal Microscopy, Flow Cytometry, Molecular Characterization and Proteomics (Mass Spectrometry), High Throughput Screening, Transgenic Fly Facility along with Intellectual Property Management Office (IPMO) and Technology Transfer Office (TTO).

The IPMO/TTO work with Bangalore Bio Cluster researchers and scientists to protect their IP and commercialize new technologies in collaboration with and through our legal, industrial and commercial partners. Additionally, C-CAMP is providing IP/Patenting advice to other notable institutes around India as well. The TTO has developed a catalogue of innovations coming out of Bangalore Bio Cluster. This can be used as a tool to attract potential licensees, investors and research partners and thus be able to explore exciting commercialization

R&D Activities and Technology Services

An important question that always pops up in the minds of inventors and entrepreneurs after a positive technology assessment is how do we now go about commercializing the invention and extracting value from it?

There are two ways to develop the commercial potential of an invention.

1. License the IP to suitable external parties
2. Form a spin-out company to develop and market the invention

Licensing

Through licensing, the owner of the IP grants permission to another party to act under all or some of the rights of the owner. IP can be out-licensed to one or several companies in return for an upfront licensing fee and/or royalties based on sales attributed to the IP, paid at determined time points (eg annually or determined milestones) to the owner of the IP.

In the case of royalties, the amount of money received at once can be quite small but over time this can accumulate to a substantial amount of money. Often, if the licensee is a small company like a start-up with funds not readily available, the option of royalties maybe a better alternative than an upfront, bulk payment. Fees for the license(s) can be milestone-based particularly, if it is an exclusive license to one company.

Forming a Spin-Out Company

This route can be termed as a transformation of an inventor to an entrepreneur.

If inventor(s) decide to commercialize the invention on their own or if licensees are difficult to find (this may be the case if the IP pertains to a niche market or if the IP is intended to cater to a whole new market), forming a start-up maybe the way to go. It may also be an option if existing players in the market don't have the required resources to bring the IP in question to the market. The potential to become the market leader in an untapped market space is also an enticing factor for many inventors with highly novel and unique inventions.

Summary

Licensing is a less demanding method of commercialization than forming a spin-out, both in terms of manpower and infrastructure required. Additionally, license agreements have the added advantage of being executed in less time than it would take to manage a spin-out company. There are some down sides to licensing in that potential licensees can be difficult to locate and the return on investment can take a long time to be realized.

In comparison, forming a spin-out company can be a highly lucrative commercialization option and pay dividends to the shareholders but there are important factors to consider before embarking on this more risky path:

1. Access to early-stage funds is important to "get the ball rolling";
2. Development costs need to be assessed and budgeted;
3. Assessment as to whether the IP leads to a business platform or just one product or service;
4. Target markets and size of markets need to be determined;
5. A strong IP position and portfolio around the core IP;
6. A solid financial business model to grow and successfully exit after 5-7 years;
7. Talented HR pool, right from the CEO down.

Given the pros and cons of either method, it would be helpful for inventors with novel ideas to consult a Technology Transfer Office (TTO) or an experienced entrepreneur for both an assessment of the technology itself as well as advice on the most appropriate commercialization path to take. The Centre for Cellular and Molecular Platforms supports both licensing and start-up activities through several ways.

Dr. Taslimarif Saiyed is Director at the Centre for Cellular and Molecular Platforms (C-CAMP), a Dept of Biotechnology initiative. His initial training has been in neuroscience where he received his PhD from Max-Planck Institute for Brain Research, Germany and followed up by postdoctoral training as a Scientist at University of California San Francisco (UCSF). At the same time, he also took training in management for Biotech and Innovation from UCSF.

Combining his scientific and business expertise, he has been management consultant to biotech firms in the US and India. Personally, he is actively involved in promoting innovation in lifescience through various policy-making bodies and funding agencies of India.

In his role as Director, Dr. Taslimarif Saiyed manages C-CAMP's strategies, operations, and business worldwide. This includes establishment, management, and promotion of technology facilities, education and training programmes, and innovation accelerator unit. Additionally, he also oversees the Intellectual Property Management Office (IPMO) and Technology Transfer Office at C-CAMP."

Mohan Sridhar is a Business Development Associate at C-CAMP. He manages both the Intellectual Property Management Office (IPMO) and Technology Transfer Office (TTO). His expertise is in patent analysis, IP management and technology transfer.

Reflections: STEM Annual Summit 2010 Gurgaon, India

The STEM Annual Summit 2010 was held from 29 September to 1 October 2010 at Fortune Select Global, Gurgaon. The three day event witnessed participation from several countries by experts from different specializations in the field of technology management. The participants received valuable inputs from an eminent faculty drawn from - academia, government bodies and private and public sector enterprises. With participants from the nations of India, Africa and EU the diversity was reflected in the discussions and idea sharing that prevailed in the summit. Several companies like Reliance, Merck, Infosys, Daimler, GE, Sierra Atlantic to mention a few, had representatives who provided a global perspective to the various concepts that did the rounds of the discussions. Speakers and panel members shared their experiences and insights in their respective field. Discussions included the impact of the Bayh-Dole model in research translation in the US: Lessons for India (This has been discussed in detail in the feature article in the current news letter); transitional research, and gaps that occur between invention and product development; options and strategies to accelerate technology transfer; various valuation techniques; next generation technologies in India and bridging the gap between academia and industry for partnerships. The success of the event is also partly owed to valuable contributions from Association of University Technology Managers (AUTM), Saudi Basic Industries Corporation (SABIC), Agricultural Biotechnology Support Project II (ABSPII), the Indian Council for Medical Research (ICMR), Council of Scientific and Industrial Research (CSIR) and The Wall Street Journal.

The summit was successful in gathering professionals from different sectors seeking IP protection or its commercialization. The event concluded on a very promising note as participants spoke of the summit as a great platform for networking and idea sharing and claimed that the ideas and solutions that emerged from the forum will definitely be applied in their respective areas to contribute to the creation of new partnerships and practices.

Upcoming Events

Association of European Science and Technology Transfer Professionals (ASTP) Training Course: Fundamentals of Technology Transfer & Advanced Marketing and Deal Making

When: 26-28 January, 2011

Where: Leuven - Belgium

The three day workshop covers most of the things that a technology transfer professional (both at beginner and advanced level) needs to know.

http://www.astp.net/

BioAsia: The Global Bio Business Forum

When: 21-24 February, 2011

Where: Hyderabad International Convention Centre, Hyderabad, India

The event aims to provide a common platform to the stakeholders and business drivers of life sciences sector to create synergies, share sustainable best practices, and chart a strategic way forward.

http://www.bioasia.in/index.html

Association of University Technology Managers (AUTM) 2011 Annual Meeting - Improving the Odds

When: 27 February - 2 March, 2011

Where: Caesars Palace Las Vegas, Las Vegas, NV, USA

The AUTM 2011 Annual Meeting is the one-stop shop for industry dealmakers and investors to network with nearly every academic research institution in the U.S. and beyond.

http://www.autm.net/Meeting_Home2.htm

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