

THE INDIAN INSTITUTE OF TECHNOLOGY MADRAS RESEARCH PARK

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INTRODUCTION

In today's global economy innovation and entrepreneurship are central to a nation's successful participation. Research universities are the main source of creativity and need to manage their creativity better. There is increasing evidence that competitive success depends more on localised concentrations of skilled people and technology than on large corporate efforts.

Discovery and invention have been the driving forces for university research. Innovation on the other hand includes a crucial economic component. It is often about extracting value from a creative understanding of what is already known. It has everything to do with commercial success and drives the economy. The technical excellence of an invention matters far less than the economic willingness of the customer or client to explore it [1]. It is successfully managed by the 'idea factory' approach - bringing unlike minds together, creating the right atmosphere and giving them freedom but carefully structuring interactions [2]. Minds can be unlike in terms of cultural background, disciplinary background or attitude. While science is universal, the scientist has a cultural background and hence many prejudices. Mixing minds from different cultural backgrounds can help overcome at least some of them as exemplified by the success of the US graduate schools in generating innovative ideas. The remarkable success of the Bell Labs in the post-war decades of the twentieth century is an example of innovations triggered by bringing together multi-disciplinary groups of researchers to work on problems of societal importance. The university research parks bring together minds with different attitudes: faculty with

knowledge of fundamentals; students, with their spirit to conquer the world; and S&T personnel from the industry with their ability to convert ideas into marketable products.

UNIVERSITY RESEARCH PARKS

The University Research Park (URP) is a property-based venture located near a university campus. It creates a local concentration of skill and technology, promoting innovation, competitiveness and entrepreneurship. It helps convert research ideas into innovative technologies, houses R&D of companies, creates and nurtures start-ups and drives technology-led regional economic development. URPs have become the most favoured policy intervention for R&D success and are the key catalysts for economic leadership. They help build sustainable competitive advantage through R&D, facilitate the commercialization of new technologies, attract FDI & leading technology companies from abroad. The URP is an "essential tool for institutions with an entrepreneurial and innovative culture that hope to benefit from complicated partnerships on a global scale". It can provide the physical space and facilities afforded not generally available on a university campus; it can do proprietary or classified research, which is not easily done in an academic environment [3-8]. Reference 3 has a wealth of information about research parks.

CRITICAL SUCCESS FACTORS

Many factors are necessary (but not sufficient!) for the success of a URP: the involvement of a local major research university, the availability of skilled workers, reasonably easy access to finance, good park infrastructure and quality of life amenities, strong and committed park leadership and the ability to attract entrepreneurs and skilled managers. Of overriding importance is a policy environment that is "patient, adaptable, and focused on commercialization" [3].

Two countries in the world stand out in terms of their support for research parks – China and the US. China envisages about a hundred URPs, at least 100 acres

each with \$1.2 b support from the government. Many are in place already with encouraging initiatives: R&D centers of MNCs encouraged to team up with URPs; overseas Chinese scientists lured home with tax breaks and low rent (253 returnees for Zhangjiang High Tech (ZHT) Park in Shanghai alone in 2003); liberal venture funds made available to the URPs (more than \$25 billion in 2006 for the ZHT Park in the Shanghai New Pudong area).

The US is the pioneer in this respect with strong legislations like the America Competes Act, doubling of federal funding for research at NSF, NIST, DOE, new investments in S&T infrastructure, new financial support for research parks, permanent research and experimentation tax-credit and strong lobbies through multiple forums like the Association of University Research Parks (AURP). Examples of successful research parks in the US abound: the Stanford RP housing Hewlett-Packard, IBM among others the Delaware RP housing DuPont, Optigenix, the North Carolina Research Triangle Park housing Glaxo, Wellcome, the Central Florida RP housing Aegis Research, AT&T Wireless, the University of California Irvine RP housing America Online, Cisco Systems and the MIT Route 128 housing DEC, Microsoft, Analog devices.

THE IIT MADRAS RESEARCH PARK

Louis Pasteur is reported to have said, “ .. discovery is the result of chance meeting a prepared mind ..”. A significant fraction of IPRs in 90s in Silicon Valley have names of IIT alumni associated with them. It appears that IITs have been preparing minds and chance has been meeting them in Silicon Valley! This is one of the reasons why IITM sought the permission as well as partial financial support from the Ministry of Human Resources Development (MHRD) in 2002 to set-up the IITMRP as a Section 25 company . Simultaneously IITM also approached the State government for the grant of 11.5 acres land and infrastructure in the vicinity of its campus. The overall cost estimate was Rs 300 crores in two phases. One-third was obtained as grant from MHRD, Rs 75 crores as bank loan and the rest through internal accruals and alumni donations. The aim was to create 1.6 lakh sq.m, 60,000

sq.m. in Phase I to house R&D of companies (85%) and incubatees (15%) and create opportunities for access to venture capital, legal advice etc.,.

The IITMRP, located adjacent to IITM with entry from Chennai's IT Corridor, provides a world-class facility that started functioning in March 2010. The first tower with a typical floor area of 3600 sq.m, is partitioned for 1 to 8 tenants. The first floor has been set aside for incubatees. The green building features international safety standards, amenities like conference facilities, food court and ATMs, 100% power back-up, central AC, fiber optic connectivity and transit-accommodation. The following site has a video of the RP, taken in 2010 during the visit of late Prof. Charles Vest, then President of the US National Academy of Engineering: <https://docs.google.com/file/d/0B7X6WNZKMaOLNIBKamtLMjZEQk0/edit>

ENSURING SUSTAINED INDUSTRY-INSTITUTE INTERACTION

Traditionally one of the problems in URPs is that the industry occupants focus only on the real estate and 'forget' to interact with the university. So IITMRP has developed a 'credit' system that will ensure that this does not happen. To remain in the park, each company must earn a minimum number of credits by interacting with IITM. The credit system is designed to promote entrepreneurial activity, inter-sector interaction, and partnerships. Thus, companies are given credits for supporting many activities, including the following: R&D projects in IITM, consultancy to IIT faculty, royalty earnings for IITM, sponsored Ph.D / Masters students, adjunct faculty teaching by Industry personnel, joint research guidance, internships and part-time employment for PhD/MS/BTech students.

A HEALTHY BEGINNING

IITM has a long history of industry interaction. The announcement of the IITMRP was greeted by the industry and IITM received a large number of applications for rental space in the park. In the very first year IITMRP enjoyed full occupancy - 35 companies and about 2500 people. The RP agenda includes a strong portfolio of cutting edge research straddling multiple sectors. There was an enormous energy



Fig 1. The IITMRP's first tower, view from the IT corridor entrance

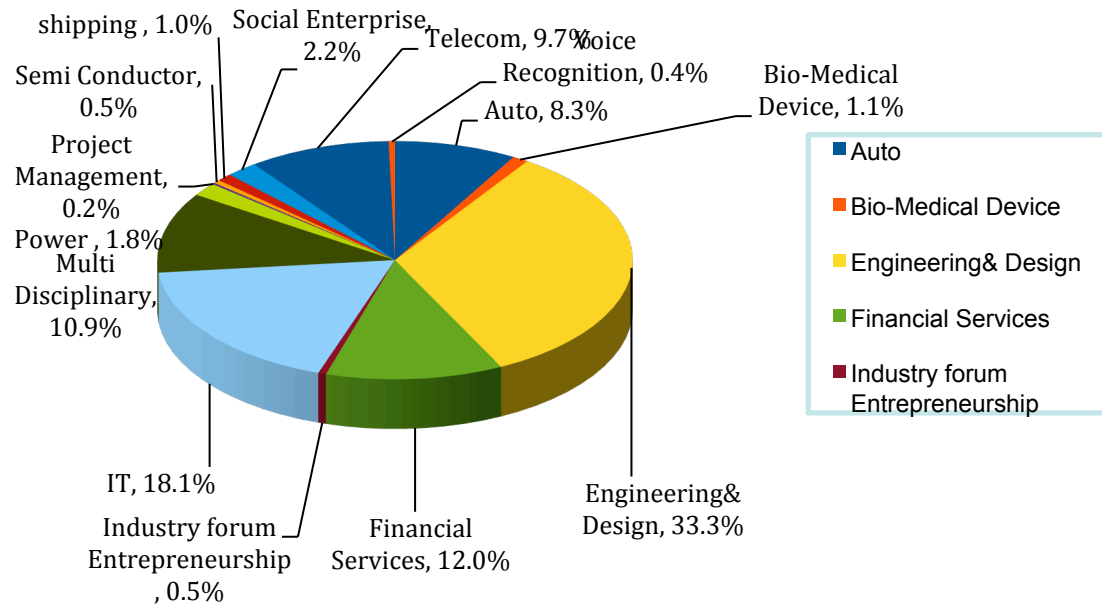


Fig 2. The sector-wise distribution of the IITMRP tenants in July 2011



Fig 3. Artist's view of the IITMRP's second tower to be completed by Dec 2014.

and enthusiasm in the entrepreneurial space with over 40 patents filed in first year, 8 in the pipeline and 5 technologies ready for transfer. The synergy between the 'unlike' minds has also worked out well: the RP's Research Expo showcased student research while the Industrial Expo exhibited the industries' innovative products and services during the annual IITM techfest, Shaastra. The RP has provided over 100 student-internships.

THE SETTING-UP PROCESS

Setting up the first URP in India was an extremely arduous process. It took 8 years to overcome bureaucratic hurdles – State, CMDA, MHRD, Planning Commission, Finance - despite the fact that most of the officials were very helpful! The funding support from MHRD has been moderate and in the form of a loan not a grant. The pressure of servicing debts could dilute the overarching objectives of the

RP. The government should realize that the power and value of ideas and IP generated are better measures of success of URP than its financial performance.

RECOMMENDATIONS FOR THE FUTURE

India needs at least 50 URPs in the next 5 years. The central government should provide generous start-up grant (40% of cost) and create a policy environment that is supportive, patient, adaptable & focused on commercialization. The state government should provide at least 10 acres near the university campus, power, water and single window clearances and tax concessions. The Universities and industries for their part should be open-minded and engage in collaborative research with an entrepreneurial mindset. The INAE has an important advocacy-role in this matter.

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