

Global Trends in Institute-Industry Collaboration For Quality Teaching and Research

India is home to 800+ universities along with over 40,000 colleges, enrolling above 40 million students. Yet, none of our universities and colleges figure in top 150 institutes of excellence, while tiny countries like Israel, South Korea and Singapore have 2-3 of their institutes/ universities in top 150 of the world. Our record in terms of breakthrough innovations or frequent citations of our researches or percentage of globally employable university passouts is also relatively dismal. This can be well remedied if suitable platforms are created for industry-academia cooperation and collaboration.

University-industry (U-I) partnerships have a direct bearing upon the rank of a country on the global innovations index (GII). The US, China, Japan, South Korea, Singapore, Malaysia, South Korea, Taiwan, Australia and several European countries have been promoting and strengthening industry-academia partnerships. Such partnerships have twin purpose of creating knowledge in the fundamental academic disciplines and the conduct of more and more mission-and product-focused researches. It is the intellectual property being created through researches being conducted in the university departments, corporate R&D divisions and public research institutes, which matters for the progress and prosperity of a nation.

The U.S. Practice:

The present day American research and innovation system, based upon the U-I partnerships has evolved in last fifty years. Industry consortiums comprising industry-university partnerships have been active for last more than 3 decades. Such consortiums receive 50 to 90% grant from the government to develop cutting edge technologies across a broad range of sectors. Industrial R&D Activities, including cutting-edge basic research, were strongly supported by corporate leadership and the investment community who recognized the importance of research to long- term product development and profitability. The government facilitated ownership of the universities in the intellectual property developed through federally sponsored research, thereby stimulating the transfer of knowledge from campuses into the marketplace at a remunerative price.

In India, universities rarely get such support, as neither there is any such law or fiscal support or even the practice of U-I roundtable sessions, facilitated by the government. In India too, ecosystem for collaborative teaching, training and research needs to be developed through statutory and fiscal support. There is need to harness the potential of university departments for target oriented researches in collaboration with industry. Industries can get intellectual and experimental support from the qualified faculty with long research experience as well as from university researchers and available resource. Government needs to take bold initiative to evolve university-industry cooperation on an ongoing basis, through some regulatory mechanism along with target based fiscal support or financial grants.

Japanese Practice

Like the US, in Japan as well, the national innovation system comprises three knowledge-creating sectors: universities, public research institutes, and industry. Universities play an important role in basic research, and industry plays an important role in development. In this regard, universities and public research institutes are a good source for affordable and precompetitive researches for the industry.

The post World-War II progress of Japan in technology development can be attributed to some extent to the U-I partnerships. The same is true for Taiwan, South Korea, Malaysia, Australia, U.K., France, Germany etc. Taiwan, has separated from the Mainland China in 1949 and has excelled in partly by virtue of the U-I partnerships.

India can have cue from Japanese Experience

Isolated and sole endeavours of industry or mere government funding alone cannot cater the growing research and innovation needs of a country like India in today's hypercompetitive and globalised knowledge driven economy. Moreover, when the country is getting increasingly dependent upon prohibitively costly researches and products involving exorbitant royalties of foreign Multinational Corporations (MNCs) to the extent of addiction upon on foreign direct investments (FDI) for employment generating products, U-I partnerships are a good alternative.

There are three ways prevalent in Japan which India can emulate to utilize the science and technology capability of the university sector for industrial innovations (i) jointly creating knowledge between university researchers and industry researchers, (ii) transferring university knowledge to the industry, and (iii) starting up new companies based on university knowledge. For each way there are some forms of university-industry partnership. University researchers and company researchers in Japan, Taiwan, Australia exchange information and opinions regularly.

Weak U-I Linkages in India

In spite of well established tradition of U-I partnerships in more than two dozen countries, India has been a non-starter in this regard, barring a miniscule U-I partnerships. There are 800+ universities and university-like autonomous institutes. But, the reported U-I partnerships are not many. To quote a couple of such partnerships, worth reckoning are:

- German automotive firm Bosch GmbH has signed a memorandum of understanding (MoU) with Indian Institute of Science (IISc), Bangalore with a view to strengthen Bosch's research and development in areas including mobility and healthcare thereby driving innovation for India-centric requirements.
- The Tata Group has entered into collaborations with world's leading academic institutions, which include Harvard University, Yale University, the Indian Institute of Technology, Madras, and the Royal Society, United Kingdom, in order to fund research and development opportunities in those institutions.

Instances are more, but they are miniscule and very few universities are in league with industry for collaborative or contractual research tie up. There are 800 plus universities or university like bodies and 400 major industry clusters. Fruitful ties can be built for purposeful researches for competitive edge of the country's manufacturing. In lack of exposure with the problems associated with industrial manufacturing or corporate strategic decision making, the researches being undertaken in the universities are less application oriented.

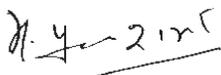
Poor Innovations Record in India

India is among very few big countries with flickering and fluctuating positions in research with miniscule achievements. As per an Economic Times bureau report "in 2008-09, India ranked 41 and China 37. India then gradually slipped every year, reaching a dismal low of 81 last year. China improved gradually, and broke into the top 25 this year. India's position improved to 66 this year, where it was four years ago. Thus, India is on a fluctuating ride, while China is constantly improving. India lags far behind, not only the the advanced countries but, vis a vis its Asian and BRICS counterparts as well, in quality research and intellectual property generation. Data from a WIPO report reveal that even the IITs, though endeavoring to move ahead on research in nanotechnology over other Indian Universities with over 5,000 scientific papers and 14 patents since 1970, are miles and miles behind China, as the Chinese Academy of Sciences tops with 29,591 publications and 705 patent filings in nanotechnology. The country has a long distance to go in promoting innovation and research.

Indian universities have improved a bit in their rankings internationally, and this improvement has had an impact on scores for education and in turn on overall rankings as well. The Indian Institute of Science (IISc), for instance, broke into the top 200 universities. But, even tiny nations like Singapore and Israel are having 2-3 universities in top 150.

Need of a Bold Government Initiative in India

The government in India should think to provide statutory, executive and fiscal support for the university-industry collaboration along with defining the relative roles and responsibilities. The government should also bring a law like 'Bayh-Dole Act' of US in India. A practice of organizing regular government-university-industry roundtables (GUIRs) also needs to be evolved, beginning with some regional roundtables, and then taking them across the 400 identified industry clusters of the country. Fiscal support needs to be extended to support university-industry consortia for infra-structure as well as for recurring expenses. This would promote research culture in universities and support the industry to come up with more and more customized products and services, instead of depending over copy-cat products and services of foreign companies. U-I partnerships can help to evolve a sound national innovations system if proper interventions are invoked.



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