

17th FICCI Higher Education Summit 2022
‘Global Destination for Higher Education: Advantage INDIA’

(30.11.2022)

1. FICCI, with the support of the MINISTRY OF EDUCATION, GOVERNMENT OF INDIA and Ministry of Commerce and Industry, Government of India, organised the 17th FICCI Higher Education Summit 2022, a Global Conference and Exhibition on November 17-19, 2022 at Indira Gandhi Stadium, New Delhi.

2. I feel really privileged to be invited to be part of the discussions among the panel of eminent educationists, scientists and others from the industry, and give a brief talk on the subject "Re-imagining & Re-designing the research ecosystem" in a session on 18 November 22.

3. The Summit perhaps witnessed participation of more than 1000 national and foreign delegates from dozens of countries (BRICS, EU, Africa, Middle East, SAARC, CIS, Canada, USA, UK, etc.), many exhibitors from top-of-the-line Indian and foreign Institutions and focused B2B meetings and a footfall of thousands of visitors.

4. I felt prudent to echo some of my thoughts on LinkedIn here that I shared in the above session. At the outset I urged that to redesign an innovative research ecosystem in the country; we would first need to undertake an honest SWOT analysis. Indian Science has done well in the last 15 years especially, when compared to the last two decades of the 20th Century for well-known reasons. We have reached the fifth position in terms of global research output. We are the third largest scientific and technical manpower, so are the number of Ph.Ds. and number of startups in the country at third position. About 1500 Indians are among the top 2% of the scientists in the world (though a sizeable number of scientists question such quantification based on the citations per-se, and feel as misleading).

5. We currently have everything that can be termed as “Advantage India” for research ecosystem per-se – robust demand for R&D (propelled by rising though inequitable incomes and evolving lifestyles in almost 05 dozen urban cities in the country), well laid policy framework to project India as Science powerhouse and strengthening capacity (STIP 2020), National Research Foundation in the nearly visible horizon, rising investments in research from both private sector and philanthropy, and ever growing IT sector to act as a seat for this revolution. The Per Capita expenditure on an Indian Scientist is comparable to most of the countries in the developed world. But that’s our problem too in a way. Our scientific community is too small (200 scientists per million). Fortunately, during the last 5 years we have launched many schemes to expand and strengthen this research base in the country – for example Accelerate Vigyan, TARE, SURE from a relatively smaller organisation Science and Engineering Research Board, DST and the dividends accrued are encouraging.

6. We in the government are not only carrying forward the rich legacy of the past, but revamping what is not promising for the research ecosystem. Importantly we are infusing enough energy and vigour in the system by conceiving, designing and implementing new schemes that are promising for the impact oriented research needed in the country (to be Atamnirbhar Bharat). Some of the recent policy interventions, which have come out of an in depth consultative process amongst many stakeholders, including scientists and policy makers are really path breaking and will definitely accelerate and impact India's scientific temperament further, and consequent the desired development.

7. The policy interventions are being further substantiated for ensuring that the accountability, transparency and integrity as three pillars of research are followed both in letter and spirit by not only the PIs, but the independent reviewers & even officers like us in the government. The aim has also been to assure the shareholders and stakeholders (largely the Principal investigators involved in research in the country) that the processes followed in allocation of funds are fair and non-discriminatory, and ensure that the business of funding is expeditious, and at par with the global standards. Importantly, there is continuous thrust on the periodic review of our system, processes, tools, and attitudes for meeting the ever increasing genuine aspirations of the scientific community.

Having said that, there are challenges that we need to be concerned about. If India needs to aim for the sustainable growth, then the development shouldn't be just service sector centric; but should be linked to innovations to churn cutting edge technology for societal good. We are strong in funding, but often not in

capturing outcomes for the requisite industrial benefits. Most of our programs are organised in horizontal but they need to get into verticals like Health, Energy, Cyber Security. As of now, whether we like it or not, a significant fraction of research happening in the country lies in the famous specific Posteur Quadrant -that is representative of generation of lower scientific new knowledge as well as lower usability. Fortunately, during the last one decade, there have been significant efforts by the government to put in mechanisms to overcome these challenges.

8. Identifying thematic priority areas is vital for innovations, but some fundamental areas should always be kept at the back burner. We really do not know when they would eventually become relevant and important, for example Taxonomy. Ideally speaking, a balance between frontier and fundamental research is the holistic approach. We need to finally ensure that unlimited incremental research into pure sciences and the lack of its conversion to socially relevant, should not leave “research” per-se as an academic exercise. Unless we do this conversion, it has a potential threat of remaining mental gymnastics of elite; and in-turn may not elicit adequate interest by industry and population at large.

9. Interdisciplinary research is another challenge - You cannot be centric to your own field to find out solutions to Man Kind Problems. But that’s just half the equation. World over, there is wide acceptability that it’s difficult to make this interdisciplinary research work. There are a many national R&D funding agencies in the world who neither have specific policy line nor processes supporting interdisciplinary work. Therefore we need to walk the talk! Isn't it so? The practices are still evolving; and structures are yet to be established in this much desired framework. There is need of institutional mechanisms - modifying existing review processes, and giving sufficient time frame to the PIs for tangible results on such works. The issue also has something to do with the much desired need of changing mind-set of researchers and reviewers alike to make both the categories risk averse, encouraging and mentoring researchers at the early stage itself, and incentivising them (One of the classical example is the recent initiative of the proposed Vigyan Ratna). A word of caution here is that the solid foundations of interdisciplinary work can be laid by only those who are fundamentally strong in their own discipline.

10. We have scope for improvement at all levels – governmental/sectoral/institutional. We also need to ensure that the political class, policy makers, and common man are really made aware of the Science we are doing at our labs. That means not only reliable, accurate and crisp science communication, but dilution of the existing interface between Outreach and In reach communication itself. One such unique recent initiative of the government is AWSAR DST @ Vigyan Prasar. I don't think globally, there are many parallel examples of this wonderful scheme for popularisation of science.

11. Finally, I shared my own vision in terms of nine important pillars to create such a research ecosystem, including but not limited to 'sense of ownership', 'autonomy', 'research integrity', 'quality vs quantity', 'inclusiveness (with focused approach on gender mainstreaming)' and 'design thinking' to define the future of this country in our vision 2035 and 2047. For all this to happen, we would need able and energetic “Science Leaders”, crucial to inventiveness.

12. Thanks Prof Souvik B.. BITS Pilani and Rajesh Pankaj for inviting me to be part of this elite panel comprising of members - Arvind Kumar, LS SHASHIDHARA, Ganesan Kannabiran, Rupamanjari Ghosh, and Ritesh Kumar Wiley India, and sharing my thoughts from a platform where the union ministers graced the occasion, and the dynamic Sh. Amitabh Kant, Sherpa G20 NITI Aayog Official impacted the audience with his phenomenal address. This was immediate prior to our panel session that commenced with me opening the floor. My sincere thanks also to FICCI Dr. Vidya Yeravdekar Ravi Panchanadan Rajan Saxena.

13. Last but not the least it was such a huge learning experience to hear from the esteemed panellists at the dais as well as from the audience during the interaction.



SEPC

Session -7 Re-imagining & Re-designing the

Special Address


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