



India Science Festival 2020 White Paper

Roundtable 2

Bringing Industry and Academia Together: Challenges, Opportunities and the way forward

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Background

The following paper is developed as an outcome of **NASSCOM Futureskills' Roundtable on Industry-Academia research collaborations: Examples of successes**. The roundtable was held at the India Science Festival 2020 at IISER, Pune on the 11th and 12th of January, 2020.

ISF was India's largest public celebration of science and engineering and was attended by more 13,000 participants. It is Aspiring Minds' effort to promote science and technology in India among the students and the workforce and help the ecosystem work towards the growth of S&T in India. Along with 50+ talks, 20+ exhibits and workshops by world-class scientists and many science games and competitions, two roundtables were held to discuss S&T in India.

The following paper discusses the key recommendations that the members of the ecosystem jointly agreed upon in order to foster close collaborations between academia and the industry and enable the ecosystem to grow and work closely.

Details of Participants

- Badri Seshadri-Co-founder and Managing Director, Synprosoft
- Rajesh Gopakumar- Centre Director and Senior Professor International Centre for Theoretical Sciences
- Gargi B. Dasgupta-Director, IBM Research India
- Cong Cao-Professor, School of Contemporary Chinese Studies, University of Nottingham Ningbo China
- Sunita Nadhamuni-Head, Healthcare Solutions, Dell EMC
- Bharat Agarwal-President, Vishwakarma University
- Kashish Mittal, Takshashila Institution
- B. Ravindran, Head, Robert Bosch Centre for Data Science and AI
- Raman Batra, Executive Vice President, NIET, Greater Noida
- Ramesh Hariharan, Co-Founder and CTO, Strand Life Sciences

Moderated by – Amit Aggarwal, CEO: IT-ITES sector skills council of India, NASSCOM.

Chapter 1

The Employment Opportunities Paradox: High demand-Unfit supply

Technological advancements of the recent few years have been unparalleled to what we had achieved at any point in time in the past. Automation is expected to seep in all industry processes as machines perform as well as humans or even outperform humans even in skills that require cognitive abilities. According to McKinsey's Report (2017), half of today's work activities could be automated by 2055.

As the emerging technologies change the future of work, the industry today is witnessing major transitions but also provides a host of opportunities especially in India. The IT- ITES sector has increased its contribution to India's GDP from 1.2% in 1998 to 7.7% in 2017 (IBEF, 2019). According to NASSCOM, the sector aggregated revenues of US\$160 billion in 2017, with export revenue standing at US\$99 billion and domestic revenue at US\$48 billion, growing by over 13% (Economic Times, 2018).

The demand for skilled professionals in the IT Industry is expected to grow at a compound annual growth rate (CAGR) of 35% between FY 2019-2023 (Business Standard, 2019, July 17), whereas, the growth of digital talent base is hovering only at around 20%. Indicating at a clear shortage of skilled professionals in the coming years (Business Standard, 2019, July 17).

As long as the pace of growth is faster than the reduction of employment due to automation, net employment continues to grow. However, new jobs have newer technological needs and hence the dire need for reskilling, research and constant growth. This is where the gaps lie between industry and academia.

NASSCOM's Industry-Academia research collaborations roundtable at India Science Festival brought the industry leaders under one roof to discuss their thoughts and recommendations on how to bridge this gap.

Chapter 2

The ways of Improving the Ecosystem

The major findings have important things to say about the current system and recommendations for improvement. Below are the two major themes discussed at the roundtable that can act as a catalyst towards enhancing industry-academia collaboration.

Establishing organizations to facilitate collaboration

- Universities must be brought together to create regional clusters to enable cross-pollination of ideas. Science and Technology research clusters must be established in every part of the country, so that exchange of ideas is enabled between Tier 1 and other academic institutions, industry, and government, and build a Hub and Spoke model out of it.
- The collaboration between the Industries and the Institutes is possible in 2 ways:-
 1. Industry gives problems to academia to solve
 2. Industry and Academia come together and explore creative problems and solutions
- Government and Industrial bodies can play a key role in joining the dots between the vibrant SMBs/ Startups Industry and Academia. SMBs are a brimming source of creativity, however, they lack time and funds.
- The government can realize these gaps and create an umbrella initiative which forces investment in Project Mission Mode for the top 10 capabilities that we want to build nationwide
- 2-3 years of intensive dialogue must be held around this, enable seed funding to create infrastructure for small grant projects which are solving challenging problems
 - in this way everyone will participate and industry will eventually sustain it once it starts flying.
- Presence of Local Market/Demand for ideas/ products enables build tech/ research centers in a region (e.g. – USA, China, Europe, etc.). As Middle Class in India will hit the significant economic standing by 2030, in

comparison to other countries like the USA, it will enable a broader audience/ marketplace for the consumption of Ideas/ Research.

- An environment of trust must be built where Government and its institutions don't have to micro-manage technological development/research of policies/ schemes, instead allow for fund flow to let the creative energy thrive and broaden the horizon of its reach.

Design and Execute collaboration incentives for Institutes

- Research wing of the Industry have to work with Academic Institutions for their existence. The issue really arises when the sharing of IP is concerned. It is challenging for industry and top tier academic institutions share the IP. However, IP sharing is easier in tier 2 intuitions as they are willing to work with the industry and not worry about IP/ or co-own the IP.
- Provide funding to enable Virtual/ Digital Project Based Learning and Mentoring (like IBM's Global Remote Mentoring Program), which removes the difficulty of physical presence of instructor/ mentor and can penetrate the remotest areas and can be highly beneficial for Tier 2 schools.
- It is critical to have policy level intervention to have a common set of mission critical tech/ research initiatives that need to be driven in India. Have liberal IP laws, easy to follow common templates that can be followed everywhere. All the stakeholder – need to have a common vision/ metric/ goal to target to build capability in emerging tech/ research in India. Have a common National Science Policy.
- For some areas of research, incentives should be dedicated to have a room for Black Swan – instead of having specific goals/ metrics so that space for creativity exists and enable facilitation and steady flow of breathtaking ideas.

Conclusion

The recommendations of the roundtable are a good starting point to initiate conversations at the national level for improving the ecosystem for students' learning, industry growth and for guiding the academia in the direction where it becomes an enabler in the growth of the economy at large. The collective roadmap for the Academia and various educational Institutes can be planned and executed in close collaboration with the industry and with support from the Government. While the two themes discussed at the roundtable are of paramount importance, it is extremely important to keep the discussion going and take simultaneous steps to better the ecosystem.

ISF would continue to hold such discussions in the future. Write to us at indiasciencefest@aspiringminds.com in case you have any thoughts, ideas, comments that you would want to share with us.

References

- McKinsey, 2017. A Future that works: Automation, Employment and Productivity. Retrieved from: <https://www.mckinsey.com/~/media/mckinsey/featured%20insights/Digital%20Disruption/Harnessing%20automation%20for%20a%20future%20that%20works/MGI-A-future-that-works-Executive-summary.ashx>
- IBEF, 2019, Dec. IT and ITES Industry in India. Retrieved from: <https://www.ibef.org/industry/information-technology-india.aspx>
- Economic Times, 2018, May 11. National technology day: here's how CIOs reforming technology implementation. Retrieved from: <https://cio.economictimes.indiatimes.com/news/strategy-and-management/national-technology-day-heres-how-cios-reforming-technology-implementation/64117740>
- Business Standard, 2019, July 17. Demand for digitally skilled talent to grow at 35% CAGR: NASSCOM. Retrieved from: https://www.business-standard.com/article/pti-stories/demand-for-digitally-skilled-talent-to-grow-at-35-cagr-nasscom-119071701032_1.html
- Business Standard, 2019, July 17. Demand for digitally skilled manpower to rise to 2.7 mn in FY23: NASSCOM. Retrieved from: https://www.business-standard.com/article/jobs/demand-for-digitally-skilled-manpower-to-rise-to-2-7-mn-in-fy23-nasscom-119071701480_1.html



