

Collaborate to innovate

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Devoting an entire chapter to innovation, the recently released Economic Survey 2020-21 called upon Indian businesses to ramp up R&D investments to achieve the country's aspiration to emerge as the third-largest economy. But, in doing this, it is important for Indian companies to remember that in the last two decades, companies and institutions the world over have moved from bespoke to collaborative innovation models.

If there were any doubts about the importance of collaboration, the Covid-19 experience should have dispelled these. It is a collaboration between industry and universities/research labs that has given the world Covid-19 vaccines in such a short time. Scientists from both the Jenner Institute and the Oxford Vaccine Group are the pioneers in ChAdOx1 - chimpanzee adenovirus vaccine vector - the vaccine technology used in AstraZeneca Covid-19 vaccine, manufactured in India by the Serum Institute. Bharat Biotech created an indigenous vaccine based on a sample of the SARS-CoV-2 virus isolated by India's National Institute of Virology

There is evidence of the importance of collaboration from pre-Covid times too. Bharat Biotech developed lysostaphin, an antimicrobial, in collaboration with the Institute of Genomics & Integrative Biology. The company collaborated with the All India Institute of Medical Sciences for the pioneering rotavirus vaccine.

Indian research labs have not only collaborated with Indian companies but also with multinationals. The National Chemical Laboratory (NCL) developed a technology for microencapsulation by which tiny particles or droplets are surrounded by a coating to give small capsules with useful properties, leading to six US patents. P&G, a leading multinational in the consumer products industry, licensed the technology from NCL and sponsored further research. After five years, technology created a perfume that was

encapsulated and diffused over weeks. This was used in the Downy range of fabric conditioners sold in the USA.

We need to make such collaborations a standard practice. The traditional mechanisms of collaboration between industry, universities and research labs are of two types. Mechanisms like meetings and conferences, consultancy and contract research, and training are arms-length in nature. While mechanisms like creation of physical facilities and joint research indicate a long-term commitment on both sides. The focus should be to enhance the long-term collaboration capability of India's universities, research labs, and industry to collaborate on joint research that can result in innovation.

This intertwining has several barriers. There is often a belief among researchers in universities and research labs that fundamental research is their focus and more important than applied research. Further, there is often little incentive for Indian universities and research labs to collaborate with the industry. Finally, there are transactional issues like appropriating value from collaboration in the domains of intellectual property ownership and licensing.

What can be done to enhance collaboration? As MNCs do, Indian industry needs to create boundary-spanning roles staffed by professionals who understand the requirements of internal product development and R&D teams and are well networked with universities and research labs to initiate and manage collaborations. Universities and research labs need to make the industry consultancy cells/technology transfer offices more impactful. Another focus for universities and industry labs must be to remove red tape that hinders collaboration and licencing of technology. The National Innovation and Startup Policy introduced in 2019 provides useful guidelines on Intellectual Property ownership management, technology licensing and institutional startup policy.

There are a couple of macro interventions that are applicable in the Indian context. First, we need to put in place mechanisms that enhance trust, as meaningful collaboration requires a minimum threshold level of trust. Second, it will be worthwhile to document collaboration initiatives, successes and failures, and to identify macro and organization-level factors that nurture and inhibit collaboration in a nation-wide study. We need to get to the root causes of why innovation works or not before planning for industry-wide interventions.

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