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Time to build Indian medtech industry to global reckoning

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COVID-19 has allowed India to see where her strengths lie as well as where the gaps are in the medtech innovation ecosystem



Over the last decade there has been a major push to develop home grown medtech product startups in healthcare and other areas of biotech. Several agencies notably Department of Science & Technology (DST), Department of Biotechnology-Biotechnology Industry Research Assistance Council (DBT-BIRAC), Millennium Alliance, Indo-U.S. Science and Technology Forum (IUSSTF), Atal Innovation Mission (AIM)-Niti Aayog and others have contributed to injecting funding and other support mechanisms to build 3000-4000 biotech/medtech startups as well as 200 S&T incubators in the country.

This arguably is a national portfolio that has been built through tax payers monies and painstaking efforts of various stakeholders, most notably the leadership shown by incubators. The incubators housing them are analogous to an “asset house”.

The innovation community has responded with a can-do attitude and have scrambled to kick start COVID-19 focused solutions. The Principal Scientific Adviser’s (PSA) Office has constituted several task forces that are co-ordinating different aspects of the response with speed and precision.

1- COVID-19 Funding: Fast decisions

Most S&T arms of the Government of India have launched COVID-19 specific funding calls, be it CAWACH by DST, Council of Scientific and Industrial Research (CSIR) labs, DBT-BIRAC (a special COVID-19 call), Technology Development Board (TDB) and Invest India as well as big incubators such as IKP Knowledge Park (IKP), Venture Center, SINE IIT Bombay, Centre for Cellular and Molecular Platforms (C-CAMP), SIIC-IIT Kanpur, AIC-CCMB and FITT IIT Delhi amongst others.

Incubators such as IKP and Venture Center launched their COVID-19 action plan to not just provide funding but also pro-actively provide support in connecting startups with mature products to scale them by connecting them to manufacturers, procurement agencies and hospitals that are at the forefront of the frontline of care.

Another feature noticeable in the strategy is rapid turnaround time for decisions. For example, in IKP’s COVID fund from the launch of call to decision to fund a cohort (I-CO fund selected 11 relevant products) was a mere 10 working days and similarly Venture Center’s NIDHI Prayas call for COVID-19 had extremely fast turnaround times. Additionally, these incubators have resourced dedicated staff to push and co-ordinate in accelerating the support extended to selected startups.

Venture Center is driving the Drug Repurposing Taskforce (under the aegis of PSA’s Office) and has looked at different aspects of 19 drugs that can then inform about strategies for India to conduct clinical trials for re-purposed drugs.

2- Startups ramping up product manufacturing

Medtech startups have responded with amazing speed and have either strategized to ramp up manufacturing of their existing products, build new products such as testing kits or vaccines or re-orient their product platforms to build COVID-19 related

products. Pune based MyLab was able to build a RT-PCR diagnostics kit for COVID-19 that received certification from Indian Council of Medical Research (ICMR) and approval from Drugs Controller General of India in a quick turnaround time.

Several other startups have also strategized to ramp up productions of antibody testing kits, defibrillators, touch free standalone hand sanitising stations, ventilators, cardiac and vital monitoring systems, oxygen enrichment systems, vaccine carriers and imaging systems amongst others. Indeed, this is indicative of the immense depth that the country now possesses in terms of innovators for building appropriate and relevant products for healthcare.

3- Connect of incubators and startups to local communities

One of the defining features of the response of incubators has been the immediate connect to the local communities especially providing safety and sanitising kits, digital non-contact thermometers for healthcare staff and other essential services. Additionally, it was seen that innovator groups nucleated organically to connect with local communities. Venture Center based in Pune has formed the Pune Faceshield Action Group that 3D-printed and delivered 30000 faceshields to essential services such as police and healthcare workers. It aims to build 100,000 faceshields. Similarly, IKP centres in Mangalore and Belgaum have designed essential products such as foot-operated sanitiser dispensers to install at local communities.

Gaps & Future Issues

All severe crises lead to a change and COVID-19 will create a new normal. India has built amazing infrastructure of science especially interdisciplinary and translational aspects of biology in the last 15 years despite history of low level of investments both in R&D (0.8 per cent of the GDP) as well as healthcare (1.3 per cent of the GDP). This needs to change not just as a stopgap measure but greater investment, consistently over a longer-range horizon, is important. We have defined the COVID-19 crisis as a national emergency and this should also make us ready to take measures with taking into account short range, medium range and long-range strategies-

Boost National Capacity

This crisis has shown that while we are perhaps still the ‘pharmacy of the world’ (though our dependencies on China for APIs is high), however when it comes to medtech products including masks, PPEs, ventilators, our capacity is low and we are net importers. The silver lining from this crisis is that it could be the “Y2K moment” for the Indian Medtech Industry.

Our national assets of translational organisations should be expanded and local manufacturing should be deepened. This is a unique opportunity for India to re-charge its “Make in India” mantra in medtech especially linking innovators to manufacturers. Instead of one AMTZ in Andhra Pradesh, we need at least four to five more- that should be made functional sooner. The mantra is to “localise, localise, localise”.

Create a National Stockpile

We do not mind, and rightly so, having a stockpile of armaments and food, it is time we build a stockpile of essential medtech products that have long shelf life or increase capacity for ramping up production when we need them in emergencies. India has to create a method for demand generation especially for “Make in India” products leveraging its recent push into Ayushman Bharat and State public procurement policy initiatives.

Build a National Bio-Innovation Grid

It is essential that “knowledge transfer” mechanisms be established amongst our translational institutions and incubators. Translational organisations such as Translational Health Science and Technology Institute (THSTI), Shri Chitra Tirunal Institute of Medical Sciences & Technology (SCTIMST), Centre for Nanoscience and Engineering (CeNSE) and CSIR-National Chemical Laboratory (NCL) should be massively strengthened further. We need fast acting Technology Transfer Offices and translational institutions and dense connect to industry. This is still in nascent stages and must be accelerated.

The existing efforts however well-meaning still look piecemeal. This crisis has shown how orchestration and clear directions help build a national response. The role of Accelerating Growth of New India's Innovations or AGNIi (the initiative of the office of PSA) and National Biopharma Mission (NBM) will need to be scaled up. Indeed, we need to make a Bio-Innovation Grid that is dynamic and networked. The role of PSA's office as an integrative platform is paramount here.

Create National Standards

India must create specific standards for all medtech products that are clear and take into account global standards. Whilst we have Bureau of Indian Standards (BIS), we need to have proper standards for categories of medtech products that are well defined. We also need a responsive standards organisation in the lines of National Institute of Standards & Technology of USA. Additionally, there is a need for "testing and validation centres"- especially biomed and material testing centres. Indeed, we have South India Textile Research Association (SITRA) but we need to expand such infrastructures. Further the Indian medtech regulations which have been streamlined should have more clarity.

From Prototypes to Products

Over the last decade, we have established, through a wide range of funding tools, close to 3000-4000 biotech startups- many of them are in prototypes (Technology Readiness Level 3) or validation stages (Technology Readiness Levels 4-7) and hence India is indeed a "land of prototypes". It is now the time to push forward and let India become a land of cutting-edge products. We also have to start providing elevated levels of funding. A grant of Rs 50 lakhs to Rs 3 crores will only take us this far and no further. We need to be able to invest in the scale of Rs 50-200 crores to our small and medium-sized enterprises sector. A New Millennium Indian Technology Leadership Initiative-TDB kind of instrument, that is fast, transparent and responsive is required urgently. This will need co-ordinated efforts involving the aforementioned points.

A missing link in the product journey in India is the connect between innovator and manufacturing vendors and therefore we are highly dependent on vendors in China which is currently the epicenter of global medtech supply chains. It is therefore highly critical that we build an ecosystem of cutting-edge vendors in manufacturing who can work in tandem with innovators. Our hubs of small but growing medtech manufacturing clusters should be strengthened.

Create another BIRAC especially for Translation of Medtech Innovation

DBT-BIRAC was created in 2012 to build the biotech startup ecosystem which it has done wonderfully over the last 7-8 years but it encompasses a wide gamut of areas in biotech and medtech. Now is the time to build another BIRAC-like organisation focused specifically on medtech innovation and its translation under the aegis of ICMR. ICMR & Ministry of Health & Family Welfare should be playing a leading role in this as they have the connect with testing beds and extensive clinical infrastructure, primary healthcare and healthcare infrastructure of Indian States. DBT, AIM and Ministry of Electronics and Information Technology (MeitY) can play a supportive role in launching of this organisation. There has to be a sense of urgency in establishment of such an organization. The new organization should be given a well-defined mandate and a timeline to develop and scale medtech products with clear and specific target product profiles.

Injection of Support to Stressed Assets

The COVID-19 crisis is a severe stress to the fledgling startups and incubators, many of which possibly may disappear. It is imperative that the government should quickly understand the new stress that startups are facing and formulate strategies to keep this nascent national asset afloat- a framework should be designed, in consultation with stakeholders, and support should be extended- not carte blanche but identify important assets and support them to tide this turbulence.

Conclusion:

COVID-19 has allowed India to see where her strengths lie as well as where the gaps are in the medtech innovation ecosystem. We will need to leverage the strengths and find strategic responses to the gaps in a mission mode. It is time to build this industry to a global reckoning.

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