

A case for technological deepening in India's healthcare sector

Healthcare is one sector where India should be allocating a large proportion of its national public research spending budget. This is not merely because of the overwhelming demand for healthcare, but also because India has an existing industrial base and a world competitive pharma industry. Both of these could provide an inherent advantage in terms of developing our potential in healthcare in general and the medical devices industry in particular.

There is scope for increased R&D expenditure in healthcare in both the public and private sectors in India. Based on data from 2015-16, only 4% of public research spending was carried out by the Department of Health Research (DHR) and the Department of Biotechnology (DBT) (a combined figure of approximately \$405 million).¹ In contrast, in the US, health and human services account for 22% of Federal R&D expenditure (approximately \$31 billion.)² Further, when it comes to private R&D within the healthcare industry in India, a major share of the R&D spending is undertaken by the pharmaceutical sector.

The Indian pharmaceutical industry, while largely concentrated in the generics drugs space, clearly stands out as one of the more innovative industries in India. It is interesting to note that even after India's patent policy became TRIPs compliant in 2005, the industry has continued to remain innovative (based on measures such as R&D expenditure, patents granted etc.) (Mani, 2016)³. Today, according to the 2015 EU Industrial R&D scoreboard's list⁴ of the world's top 2500 spenders on R&D, there are 8 Indian firms (See Table 1) in the Pharmaceuticals & Biotechnology category as compared to 161 US firms and 21 Chinese

¹ [Data from Annual Reports of Department of Health Research \(DHR\) and Department of Biotechnology \(DBT\) \[INR to USD = 0.01546 \(31st Dec 2015-RBI\)\]](#)

² [R&D in the 2015 US Budget Report](#) See slide 12 in '[R&D in India: Towards the 2% goal](#)'

³ Mani, Sunil (2016) *One size does not fit all An analysis of the importance of industry-specific vertical policies for growing high technology industries in India*, GRIPS Discussion Paper 16-08, National Graduate Institute for Policy Studies, Japan, July, 2016.

⁴ The 2015 EU Industrial R&D Investment Scoreboard, <http://iri.jrc.ec.europa.eu/scoreboard15.html>

firms. Indian firms are however conspicuous by their complete absence in global R&D in the Health Equipment and Services segment where the landscape is mostly dominated by firms from Ireland, USA, Japan and Germany. An increased focus on R&D in healthcare equipment & services thus may not only help in technological deepening within healthcare, but also possibly in the provision of affordable and accessible healthcare through new 'frugal' medical devices and services in India.

Table 1. R&D in Pharmaceuticals and Biotechnology: Firms in the top 2500

Firm	R&D 2014 (\$ mn)	Sales 2014 (\$ mn)	Calculated R&D Intensity	Average global R&D intensity
Dr Reddy's Laboratories	302	2,540	11.9	15
Lupin	176.4	2,177	8.1	
Sun Pharmaceutical Industries	162	2,765	5.9	
Cipla	123	1,880	6.6	
Wockhardt	84	760	11.1	
Cadila Healthcare	84	1,468	5.7	
Piramal Enterprises	46	878	5.2	
Glenmark Pharmaceuticals	24	1,034	2.3	

Source: The 2015 EU Industrial R&D Investment Scoreboard, IRI, EU

The Indian medical equipment market while fast growing (it was worth around \$5 billion in 2015-16), is primarily import-driven⁵ with imports accounting for over 70% of the market. And while there are instances of product and process innovations in cost-effective healthcare in India (See [Frugal Technology in Healthcare](#)), domestic production in this sector is mostly low tech, dominated by disposable materials and supplies. There appears to be a dependence on MNCs for the more sophisticated, high tech equipment.⁶

Further, despite the growth of the Indian start-up ecosystem in the past few years, there seems to be a gap when it comes to emergence of new domestic players in the health start-up space. According to data available on start-ups, only 685 out of 14770 start-ups (4.6%) incorporated in 2015 in India were in the sphere of health tech, healthcare and biotechnology (See Annexure- Figure 1) vis-a-vis internet-based start-ups (around 50%) and mobile start-ups (13%) (See Annexure-Figure 2 for top five sectors). It may be important to consider specific

⁵ *Recommendations of the Task force on the Medical Devices sector in India- 2015*, Department of Pharmaceuticals, Ministry of Chemicals and fertilizers, Government of India

⁶ *Ibid.*

vertical policies⁷ (as observed in the case of the generic drugs segment) to promote technological deepening in the healthcare industry as a whole.

The medical devices manufacturing sector has already been pushing for reform for some time now.⁸ The notification of the separate [Medical Device Rules 2017](#) by the Ministry of Health and Family Welfare (until now, medical devices have been included under the Drugs and Cosmetics Act, 1940) is a welcome move. The aim of the new rules is to harmonize the medical device manufacturing regulation with global standards and also increase the affordability of healthcare services for the poor. Having consolidated its competitive edge in pharmaceuticals, India should now consider increasing its share of total public research spending in healthcare (for a start) to enable the healthcare sector to diversify beyond pharma, building on its existing industrial base to tap segments such as health care equipment and services.

Note:

- i. The category ‘All health and biotech start-ups’ comprises a sum of three categories from the TRACXN database, namely, Health care, Health technology and Biotechnology.

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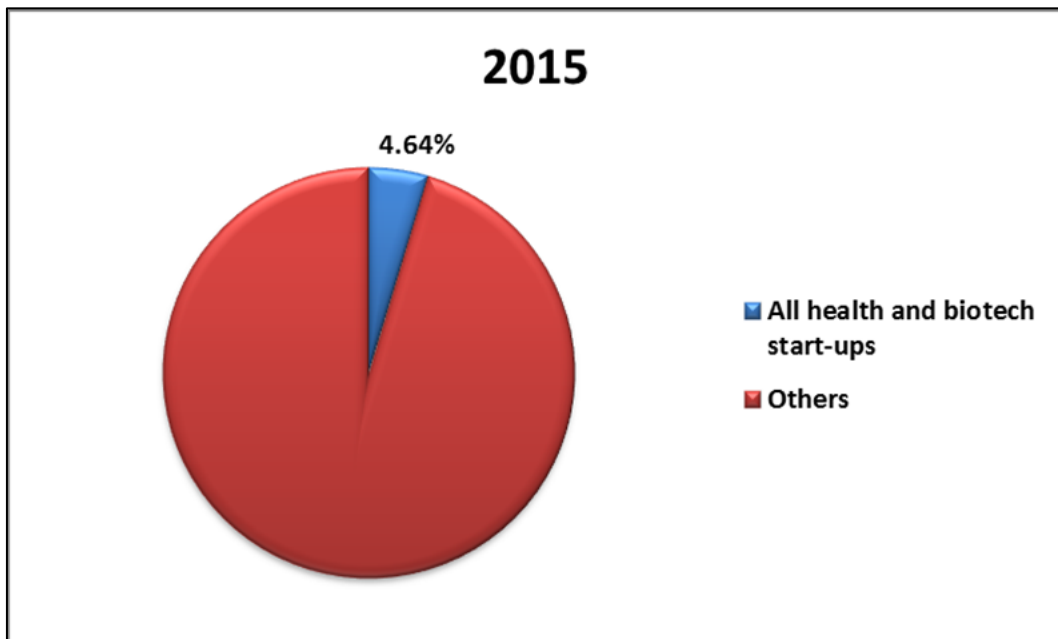
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⁷ Mani, Sunil (2016) *One size does not fit all An analysis of the importance of industry-specific vertical policies for growing high technology industries in India*, GRIPS Discussion Paper 16-08, National Graduate Institute for Policy Studies, Japan, July, 2016.

⁸ <http://businesswireindia.com/news/news-details/medical-device-industry-urges-ministry-health-family-welfare-expedite-pmos-decisions-regulatory-reforms-sector/50625>

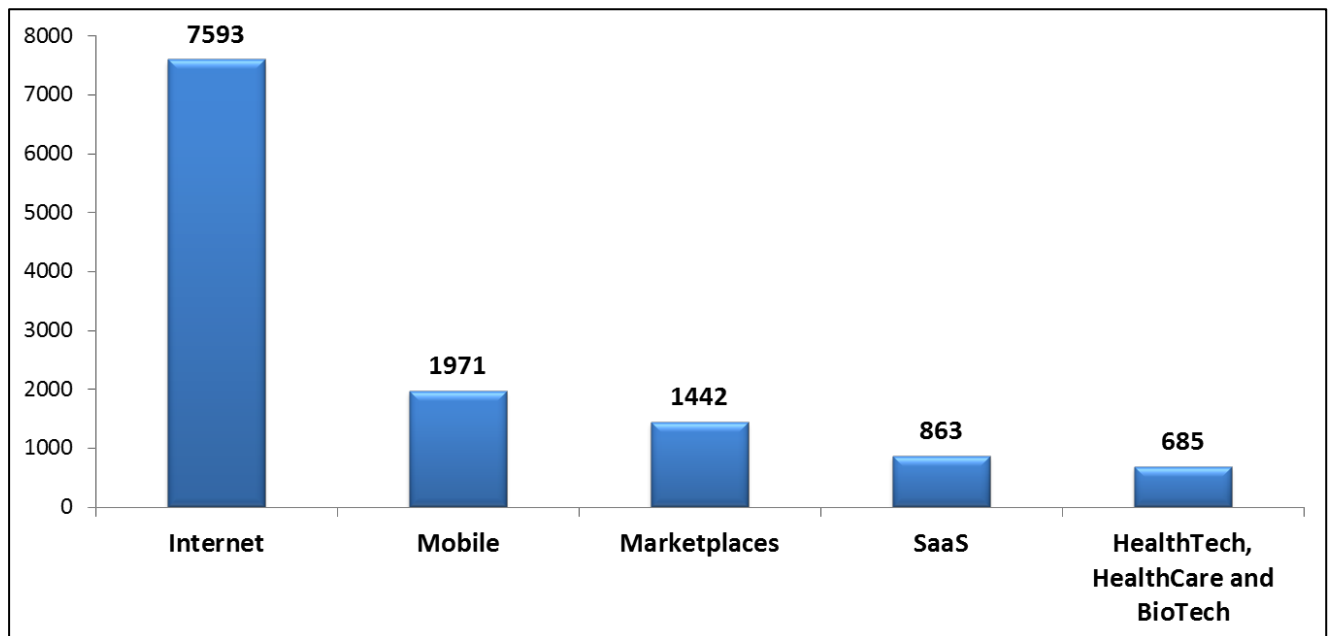
Annexure

Figure 1. Share of health and biotech start-ups (2015)



Source: i. Prof. Pankaj Chandra (Accessed from TRACXN database)
ii. CTIER

Figure 2. Top 5 sectors for Indian Start-ups (by number) 2015



Source: i. Prof. Pankaj Chandra (Accessed from TRACXN database)
ii. CTIER