

## Supporting start-ups

‘If you want to grow, join a start-up.’ These are the words of a young person, who joined a young company in Bengaluru soon after her Master’s degree a couple of years ago. This is quite an amazing statement for the biotech sector in India.

Before going any further, we should clarify the type of entrepreneurship we are discussing here. The annual Global Entrepreneurship Monitor report analyses the entrepreneurial activity in various countries. A lot of entrepreneurship in India is necessity-driven (9th rank/64 countries) as opposed to opportunity-driven (57th). The comparable figures for the United States are 56th and 4th respectively (Anon., Global Entrepreneurship Monitor, Global Report 2016/2017). Thus, many of our entrepreneurs are essentially just generating their own employment. These are low-skill jobs and will never scale up. The entrepreneurs we are focusing on here are of a different breed: highly educated, accessing large amounts of money from diverse sources, growing their teams and dreaming of creating high-end products or services. These entrepreneurs will help make the Indian economy more innovation-driven.

Recent years have seen a large increase in the number of such start-ups in India, including in medtech and multiple sub-areas of biotech. Increased funding, more incubators and a greater degree of confidence appear to be the strongest pillars for this growth. There has been unprecedented funding by the government. The Biotechnology Industry Research Assistance Council (BIRAC) of the Government of India (GoI) – with initiatives such as the Biotechnology Ignition Grant (BIG) – has played the biggest role in this sector. Funding by the Bill & Melinda Gates Foundation, and Grand Challenges Canada has been critical for several young firms. National competitions such as the Power of Ideas, India Innovation Growth Programme, and others by private funders have increased the opportunities for funding, mentoring and networking. There are also members of angel funding fora (and ‘finders’ who help find suitable funders), social investors such as Unitus Seed Fund and Villgro, social enterprise competitions such as Tata Social Enterprise Challenge and so on, who are taking an interest in these sectors. Amongst the states, Karnataka, with its recent ‘Idea to Proof of Concept’ (Idea2POC) initiative that mir-

rors BIG, the Bio-venture Fund, the Startup Fund of Funds and the Grand Challenges Funds, seems to be taking the lead in terms of the direct funding of start-ups.

The Technology Business Incubators of the Department of Science and Technology, GoI, are well known. There are also now a good number of well-equipped biotech and medtech incubators, again, often supported by BIRAC, that are geographically well spread out. Already, there is another initiative in the form of the Atal Innovation Mission that will help incubators scale up: one of the first six to be selected is in the bio-sector.

In terms of confidence, there is both greater self-confidence and a greater confidence in how supportive the environment is. An entrepreneur mentioned that as part of a multinational company in Bengaluru, he had been through several cycles of product development ‘from the voice of the customer to a product on the shelf’. This gave him the self-belief to start a company himself. It has been over 25 years since liberalization began in 1991. The country has now had time to produce a multitude of successes in the private sector. Each of these has yielded experienced business professionals who have been through the cycle of creating large and successful companies, technical experts with ample experience in the private sector, business development and sales professionals with rich networks abroad, and high net-worth individuals. Each of these (overlapping) groups of people enriches the environment for the newbies of today. Although there were no home-grown ‘serial entrepreneurs’ a few years ago, they are present now, and this includes those in the technically challenging areas of biotech. Been there, done that and am doing it again.

Nevertheless, most start-ups in this sector are by first-timers. There will be failures, but some of these failures will breed success, as exemplified by the following story that has played out in Bengaluru over the past 10 years. A brand new company recruited fresh postgraduates. The recruits did everything, starting from setting up the partitions. Being biotech graduates, they had to do technical work. Being in a start-up, they also had to take care of marketing and sales. In the process they realized that large companies were asking for services that were unavailable. They provided this feedback to the management, but by then the company was closing down. After

taking down the partitions, a couple of these employees went on to start their own company. From the first year, they had major generic firms as their clients, and within a couple of years they started exporting. They had identified what the market wanted and filled the need. A textbook case of entrepreneurship! Except that it was written in the United States.

The phenomenon has transplanted to India. Young people are realizing that start-ups provide them a better experience than big companies. It has been said that it takes 20 years to learn in a big company what one learns in around five years in a young company. In the former, one is slotted too narrowly, too early. Someone – in India – recently remarked ‘[That is why] I would never allow any young person I know to join a big company’. Postgraduate students who have joined start-ups are very positive about their experience. ‘I have learned a lot’, is a common refrain.

We recently conducted an event, StartUpBio-2017, on our campus in Bengaluru. Eighty of the 200-plus attendees were from start-ups, and they represented 60 firms. The mentoring sessions were one of the strongest features of the meeting. Experienced professionals – investors, technologists, experienced managers and others – were invited to attend not as speakers but as mentors. The 30-plus mentors had around 60 meetings, and several agreed to carry on the discussion with their mentees later. Some even discussed investments. I strongly believe that many such sessions need to be organized, by incubators and other institutions. Large amounts of money, energy and initiative are being invested in these young firms, and we need to facilitate their efforts in every way possible.

Why do we need to support start-ups? It is not merely to be in sync with the existing global economic paradigm of a dominant capitalistic economy, within a neoliberal framework. Rather, we need to look at these young firms as a source of affordable, accessible and appropriate innovations. It will not be possible to service all the health, agriculture, fuel and other needs of the country by importing solutions. Many of them will have to be indigenous, born of the challenges around us. The solutions may not start out as low-priced, but over time, with greater competition, their prices will drop. We have seen this play out with the generic drug and the vaccine sectors, not to mention other areas such as mobile telephony. This will be the only way to service the large and multifarious needs of the country, the region and much of the world.

Of course innovation can happen in large companies as well. Here is another story that played out in Bengaluru several years ago. It concerns the low-cost ECG machine of General Electric. Their standard machine is large, and sits in a laboratory. Having decided to make a portable one, their local team devised a model that was robust, had a long-life battery that charged quickly, used the same paper that a bus conductor’s ticketing machine does rather than thermal paper, did not feature complicated instructions, but just had a few coloured buttons that could

be used by a speaker of any language, and could be carried around on a bicycle or any other two-wheeler. The machine was much cheaper than the standard model, and brought the price of an ECG down from a few hundred rupees to a few tens. Most of these machines have been purchased by physicians, further sparing the patient the expense of travelling to a diagnostic lab. The product met international standards of certification, and also sold well in Europe. Although this is not the story of a start-up, it is a story of innovation in India.

However, large companies face challenges in innovating. They are under pressure to meet the expectations of their investors. In protecting current revenue streams, they usually innovate around their existing products and services, making incremental innovations. This also requires them to focus on products with large markets. And – at least in pharma biotech – these companies often operate in a Western pricing paradigm. Whereas it is difficult to pivot a large ship, start-ups are often scrappy and nimble, and will find it attractive to build even upon smaller opportunities. This aspect also contributes to the sustainability of innovation. The continual seizing of new opportunities by young firms.

There is another angle of innovation that we must consider: its context and location. Currently most of the bio-related start-ups in the country are found in only half a dozen cities (Saberwal, G., *Curr. Sci.*, 2016, **110**(2), 167–171). We need to expand the locus of innovation to smaller towns and rural locations. If ‘innovation loves constraints’, there will be novel constraints in these different geographies. There will also be different types of problems that will demand solutions. And, of course, all of this leads to economic development of the country.

Finally we need to support such companies for their potential to create jobs. Neither can the Government nor the existing private sector provides jobs for the millions of young people who seek them. A multitude of start-ups, however, would be a strong contributor to addressing this vital challenge.

Do our start-ups face challenges? Certainly they do. Some of the biggest ones (as enumerated in Saberwal) have inadequate funding, insufficiently trained manpower and the need for simpler and clearer rules and regulations by the Government. Are there lacunae in their ecosystem? Yes, there are. We need more of everything: more entrepreneurs, more funding, more mentoring, more facilities, more locations, more big successes. As for many things, for a country of this size, the efforts are still fledgling.

So, support start-ups! Do what you can for the next one that you come across.

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