

R&D: spending for sustainable future

Mukul Saxena

The beginning of August saw a very quiet but a very significant development. The government's think tank Niti Aayog and the industry, represented by Confederation of Indian Industries (CII), entered a partnership for the sustainable development of India. With this, the sustainable development goals (SDGs) under the aegis of United Nations (UN) are also launched.

For a common man, it may not enthruse any interest. However, for professionals like myself, it is a crucial development. During the course of the launch, Amitabh Kant, Niti Aayog CEO articulated a few things, which may not just stimulate a technology graduate but probably also the common man.

Kant emphasised that the only way to grow and "develop sustainably" is to use technology for growth and use new and renewable energy to push for research and development (R&D) and innovation. Though the Niti Aayog CEO was talking in the context of developing the demand for electrical vehicle and hydrogen cars, what probably was not properly amplified was the importance of R&D and innovation for overall sustainability of society and environment.

This — recognising R&D as the axle for sustainability — is where India has probably missed the point. And it starts from the very beginning, that is opportunities in R&D for a technology graduate.

More than three decades ago, graduating from one of the premier technology institutes in the country, I had very high aspirations of staying close to technology and R&D. However, the options for R&D careers in those days were limited, apart from the few opportunities in government-led organisation such as CSIR, DRDO or ISRO. Or one can say opportunities were as good as none.

So, I did what many of us saw as a preferred route — go to the US for higher studies and gain a more "relevant" research and innovation experience.

Over the years, things have improved in India but the movement in industry's focus on R&D has been a very slow pace. Apart from the government bodies, the first real effort was made not by an Indian industrial house, but by America's Texas Instruments that laid the foundation of its R&D centre in Bengaluru in 1985.

And again, there was a lull till 2000 when the real impetus came from GE setting up its biggest R&D base (official-

ly inaugurated as JFWTC on September 20, 2000) beyond its traditional bastions of corporate R&D in Niskayuna, New York.

The last two decades have witnessed the mushrooming of R&D organisations in a majority of global organisations headquartered all-across the globe.

Lagging behind

In the midst of all this R&D cultural evolution, the Indian corporates have been rather slow in flexing their muscles and capitalising on the regional strengths. Unfortunately, the Indian corporates have stayed agnostic towards research and innovation with a strong inclination towards either building manufacturing bases to produce products designed elsewhere or preferably sell traded products within the country.

A deep dive into the Indian corporate R&D spend will throw up some interesting facts — sector by sector comparison of the percentage of revenue spent towards R&D between Indian companies and their western counterparts will reveal how far we have fallen behind in research spending.

- India's spending on R&D (percentage of GDP) has been stagnant at 0.6-0.7% in two decades — much lower than US (2.8%), China (2.1%), Israel (4.3%) and Korea (4.2%)

- In 2015, there was a sizable decline in R&D spending even as GDP per capita continued to rise.

- Private investments in R&D have severely lagged public investments in India

- In most countries, the private sector carries out most of the R&D.

- About three-fifths of government's investment in R&D is spread over the key government science funding agencies like Atomic Energy, Space, Earth Sciences, Science and Technology and Biotechnology.

However, amidst all these dark clouds, there is a fine silver lining in the form of agility of the Indian companies and their aspiration to be at par with their western counterparts. The geopolitical developments that saw the growth of China into an economic superpower will also unfold interesting opportunities for India as the world looks out for options to de-risk their single country exposure.

Any forward thinking Indian corporate will see these opportunities standing at the crossroads of "quick gains" versus "sustainable profitable growth for secured future" through technical entrepreneurship.

(The writer is Chief Technology Officer, Havells India)