

'We need to convert science research into start-ups'

Q&A

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India needs to invest a lot more money in science research and translate this research into products and solutions for its people, says trustee at the Infosys Science Foundation and co-founder at Infosys **KRIS GOPALAKRISHNAN**. In an interview with Raghu Krishnan, Gopalakrishnan says, surprisingly, the private sector is funding projects in places like the Massachusetts Institute of Technology, Harvard and Stanford. Edited excerpts:

What is the status of science funding in India?
We have very good researchers. Rankings say it is not bad in terms of publications. Where we do miss out is quality. Also, the structure of research in India is in small groups — a professor with two or three students. They seek funding of ₹1-5 lakh. But there is a need for larger funding and larger groups have to work on research. LIGO (Laser Interferometer Gravitational-Wave Observatory) was a 30-year project that got billions of dollars in funding. For 30 years, scientists did not get any results. Of the 1,000 people, around 30 from India contributed to this project. So it is possible to do good work in India. We spend 0.8 per cent of the GDP in research, of which 0.6 per cent is from the government and the rest from the private sector. US spends 2 per cent, Korea 4 per cent and China 3 per cent. We need to

spend significantly more; we need to increase private funding.

Globally, alumni contribute to institutes for research. What is happening in India?
Indian Institute of Technology, Madras, is leading. It has taken them 15-20 years to get where they are. They get ₹30-50 crore every year. They are targeting ₹100 crore over the next two years, primarily from alumni and the industry.

What more needs to be done?
We need to look at how we can become even more ambitious in our research programmes, which I believe, requires private support. We also need to look at how we can convert research into start-ups and that requires significant risk funding. If you go to any major research university in the US or UK, you will have a department for trans-

lational research. They look at ideas and projects, take it to the industry. It is starting to happen in India, it is still a trickle.

Will we see this change happening soon?
The positive virtuous cycle has not begun. That is founders, whose start-ups do well, contribute to their alma mater. Alumni are the largest contributors to Stanford. IIT alumni do extremely well. If you look at a third of the new start-ups in the Silicon Valley, they have founders of Indian origin, but the ideas they got were from the work they did elsewhere. They are not based on the work they did at IITs. That is the thing that we need to change. It also requires us to set up incubators within research institutions. We need translational research for incubating these companies, grant funding, you need industry to be co-located within research institutions. The only such example is the IIT Madras Research Park. The government has promised funding for six more such research parks.

We are seeing a number of start-ups emerging using fundamental research in defence, both in the US and Israel. Do you see that happening here?
There is one key difference here. Our

research institutions, especially the government ones, are pure research institutions, without student communities. There may be some PhD students, but no undergraduate or postgraduate students. If you look at the US or Israel, they are primarily research and educational institutions. That's why we need to look at IISc, IIT Madras, etc, as the ones that collaborate with defence, or with the government. I think the CSIR (Council of Scientific & Industrial Research) labs have a particular purpose, but they need to be part of the university system. We need to have at least a few mission-mode programmes, have enough funding, with help from the private sector and philanthropy, create translational departments that take research and convert them to products or businesses. Creation of start-ups within these institutions will see improvements.

Is the private sector being risk averse in investing in research?
They are disconnected. The private sector is surprisingly funding projects in places like the MIT, Harvard and Stanford. The large companies have their own R&D; it's the mid-sized companies that are doing a lot of sponsored research. The defense sector also does a lot of sponsored research with IITs,

etc. But we want support for basic research, support for pushing the frontiers of science.

What has been the success of the Infosys Science Foundation, which gives Infosys Prize to recognise scientific research every year?
It is again showing the way in certain things. By recognising people, we are creating icons, inspiration for youngsters. We are interacting with some and hoping they will make a career in science.

Are you seeing any changes now?
We are seeing that the quality of people we are getting in some fields is improving. These awardees are getting further recognition, bigger recognition. That is encouraging for us, because we are picking the right people and the jury is continuing to work with us because they see the value of continuing to work with us. It is by and large an international jury and they are spending time to select these people as well. This year's winners will be announced on November 15.

