S. SCHAEFFER

Q&A Subra Suresh
Merit comes first

Subra Suresh, former dean of engineering at the Massachusetts Institute of Technology in Cambridge, began a six-year term as the director of the National Science Foundation (NSF) in Washington DC last October. As he nears his one-year anniversary as head of the US$6-billion agency — the primary funder of basic physical-sciences research in the United States — Suresh discusses the challenges that the NSF faces, including a stormy fiscal climate and mounting calls for research to show economic returns.

How important is it that science looks useful in the current budget climate?
It's important for us to articulate the usefulness of science. But for an agency like the NSF, it will be dangerous if we choose to follow the latest fashion and lose sight of the long-term need to support science. We are not a mission agency. We don't have to produce a product next year.

In July, the NSF launched the Innovation Corps (I-Corps) to support commercialization of technology. Isn't that supposed to help increase pay-offs in the short term?
I-Corps' goal is to create a national infrastructure and mechanisms that help to support those institutions that have already received funding from the NSF.

Suppose that a young inventor, supported by the NSF, needs to know whether a scientific discovery has any potential value beyond a publication. Who do they talk to? Where do they go? Usually, at larger universities, you talk to the technology-licensing officer. But there are many institutions where the young faculty member doesn't have that opportunity.

So would a measure of the programme's success be an improvement in such an institution's patent rate?
It could be patent rate, or patents that are licensed, not just patents that are filed. It could also be how industry has engaged with that university, and helped to educate the students.

The National Science Board, the NSF's governing body, has a task force that is evaluating the two funding criteria: intellectual merit and broader impacts. How would you define broader impacts?
Broader impact has many different flavours. In some cases, the science itself can have a broad societal impact. You could do something with NSF-funded research that changes the way undergraduate education happens around the country: create a tool, a mechanism, a model, software. That's broader impact.

Bringing under-represented groups to your lab, or giving talks in community colleges about your research, exciting those who would otherwise not go into science. That's also broader impact.

How much should researchers be thinking about broader impacts?
We don't want to compromise scientific merit at all; the work has to be outstanding before it gets funding. But given that, I think it's useful to ask the question: what's the impact of this work? That is why, in 1997, the NSF created broader impact as an additional criterion.

Whose responsibility is it to ensure that work has a broader impact?
Individuals can play an important part, as can institutions and departments. This is a delicate balance to achieve. You cannot say that individuals are responsible and the institution is not, or vice versa.

How low can the grant acceptance rate be and still be acceptable?
There is no magic number. Low success rates can be devastating for a number of reasons: you have to write more proposals before you're successful; it can damage morale; it strains the reviewer system, which is our peer community.

What are the mechanisms we can put in place so that we don't waste the community's time? The National Institutes of Health has a triage system. Is that the right system for the NSF? Maybe, maybe not. In some cases, we have preproposals — shorter proposals. Can that be a mechanism? Can we put a cap on how many NSF proposals you can submit at a given time? Right now, there's no upper limit.

Is that something you're considering?
It's under discussion. Everything is under discussion. But at the same time, we want to be fair. We want to be sure that people who are very good, who should be in science, don't get discouraged because two of their proposals didn't get funded.

You're still quite new to Washington. What has surprised you most?
I have to mention a quote I've heard attributed to Woodrow Wilson, who was president of Princeton University in New Jersey before he was president of the United States. When he arrived in Washington, a reporter asked him why he left his Ivy League school. Apparently, Mr Wilson responded: "I came to Washington so I don't have to deal with politics anymore." Some of this is new, but not all of it. ■

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