

Reward Ideas, Not CVs

BY BRYAN GAENSLER

The way scientific research is funded in Australia's universities puts an excessive emphasis on guaranteed results at the expense of adventurous ideas and major breakthroughs.

Steady improvements to our health, to our standard of living and to the overall economy all rely on research that figures out how to make things smaller, faster or cheaper. However, truly world-changing ideas come from unexpected directions.

Two brothers experimenting with spare parts in a bicycle repair shop made the key breakthroughs that gave birth to modern aviation. A Stanford University PhD project on mathematical patterns on the internet grew into the \$200 billion company Google. And an astronomical experiment to detect flashes of radio emission from distant exploding stars led to the patent that now underpins wireless internet communications.

It is often the innovator from a different research field who ends up turning the problem completely on its head, and it is sometimes the obscure "blue sky" experiment that acts as the catalyst to create entire new industries or solutions.

Unfortunately, Australia's potential for discovery and innovation is being held back by a system that encourages our scientists to play it safe, to follow traditional paths in their research and to steer clear of avant-garde experiments that might lead to spectacular breakthroughs.

Within the Australian university system, most scientists rely heavily on support from the Australian Research Council. The ARC, whose mission is "to advance Australia's research excellence,

to be globally competitive, and deliver benefits to the community", provides the funds that cover a researcher's equipment, travel, staff costs and, in some cases (including mine), his or her own salary.

The ARC receives thousands of proposals for funding each year, and sets out clear criteria for ranking them. For the ARC's flagship "Discovery" program, the dominant criterion is the applicant's track record, worth a massive 40% of a proposal's overall grade. A further 30% is awarded for significance and 10% for national benefit, but the project itself is worth only 20%.

A typical ARC proposal might thus comprise 30 pages in which scientists list their publications, awards and most important achievements, but only 10 pages to actually describe the work to be done.

I personally have worked hard to develop a strong track record. I have followed a traditional career path, and work on mainstream topics whose worth and relevance is broadly recognised. I have thus generally experienced funding success.

However, in my opinion the heavy emphasis on track record goes against the enshrined Australian principle of the "fair go". It is the idea and the vision that one exposit, not the length of one's CV, that should be the main factor determining a proposal's merit and its prospects for funding.

Instead, the current system fosters a



Dr Bryan Gaensler photographed while an Assistant Professor of Astronomy at Harvard University in 2004. He is now studying polarised radio emissions from distant galaxies to map the magnetism that permeates interstellar and intergalactic space. Photo: Laurie Swope

scenario in which a solid and safe set of experiments from an established senior scientist will inevitably be ranked above a brilliant but high-risk proposal from a researcher who may have changed fields or who has made unorthodox career choices.

Members of the scientific community must thus all carefully position themselves in the former category. The excessive focus on track record has led to a system-wide dynamic that stifles adventurous ideas and encourages short-term outcomes.

We unquestionably need a robust assessment process as part of the ARC system to ensure that federal funding is spent responsibly. But there also needs to be a balance. We need to make better provision for the risky ideas that sometimes might not deliver on their promises but that also just might change the world.

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