

Time to Rethink Public Investment in Research

The failure of National Research Priorities and CSIRO's Flagships to capture imagination, plus dramatic shifts in the profile of Australian research, mean that science needs a new socioeconomic focus, says Tom Spurling.

Governments and companies don't invest in science to keep scientists amused. They do so for a socioeconomic purpose, and governments expect scientists will do research to the highest international standards.

The government's proposed Research Quality Framework (RQF) is intended to ensure that the research it funds in universities and public agencies like CSIRO is of the highest quality and impact. While rewarding quality is necessary, it is not sufficient for a comprehensive national science policy. Australia also needs:

- a national view about the problems that our nation's scientists should be tackling;
- the level of resources needed to solve those problems; and
- relevant structures and partnerships so that industries, communities and government can better capture science and innovation.

The National Research Priorities (announced in 2002) and CSIRO's Flagships (2003) have tried to address priorities, but both have failed to capture the imagination of the nation or even the scientific community. Moreover, there is little value in setting research priorities if these are not coherently connected to funding and policy initiatives to enable adoption and commercial use of the knowledge gained.

Another defect in the National Research Priorities is that they do not clearly differentiate research where Australia should be a world leader. We should be part of international R&D efforts to enable "fast-follower" adoption and to monitor international developments.

Sorting out the different levels of effort requires robust and public debate across all research priorities. We need strong public support for the considerable investment in research, skills and infrastructure that will be needed.

Since 1981–82 Federal government support for science and innovation has averaged 0.66% of GDP. However, despite a modest boost from Backing Australia's Ability, in 2005–06 funding will fall to only 0.6% of GDP, close to its 25-year low. With so many easily identifiable problems for research to tackle, this is not the right time to be reducing our invest-



Tom Spurling operates high-powered laser equipment for cladding in his research on the chemistry of polymers. Photo: Swinburne University

ment in science and technology.

There has been a dramatic change in the past two decades in the distribution of funding. Support for major research agencies like CSIRO has dropped from 0.32% of GDP in 1981–82 to 0.15% in 2005–06. This expenditure has been transferred to business R&D and innovation, and programs such as Cooperative Research Centres and the National Health & Medical Research Council.

One of the consequences of the shift of resources has been a large increase in "non-oriented research" that has no particular socioeconomic objective. One of the unplanned consequences of the RQF could be a further increase in such research if the funding that flows from the RQF gives undue weight to academic quality and insufficient emphasis to research impact.

If we are to gain the full value from public investment in research we must have effective structures to ensure that research findings are adopted. We need timely access to the "codified" knowledge of research publications and high rates of transfer of the "embodied" knowledge of peoples' skills through greater mobility between research and industry and rapid migration of PhD graduates into industry.

We have just changed our industrial relations system from one devised in the late 19th century to one that is supposed to be more suitable to conditions in the early 21st century. We have a public sector research system that was set up in the first part of the 20th century and now reflects the economic and social needs of a past era. It is time to rethink thoroughly the way we do public science in Australia.

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