

Blind to Innovation

The CSIRO in the 21st Century

TOM QUIRK

THE Howard Government's impending control of the Senate invites new thinking about reform of even the most cantankerous dinosaurs. Surely one of the deserving objects for reform should be Australia's failing 'innovation' icon, the CSIRO. It has everything any self-respecting reformer could want: an over-long history of self-justification, demonstrable institutional capture by its staff, and claims for taxpayer support that put it up with the ABC for general hubris and arrogance.

Consider the CSIRO's language and the key messages running through its Strategic Plan for 2004 to 2007. Here the national 'Inventor' has firmly set itself the task of remaking the Australian environment and economy using science to drive innovation. This task is an absurd impossibility. Innovation, for an open economy such as Australia's now is, cannot be planned, let alone by an agency so remote from the market and the Australian community as the CSIRO.

In fact, the Strategic Plan for 2004 to 2007 is a bizarre document with some

26,000 words of often silly nonsense of the 'Hail to the athlete, hail to the scientist' ilk. Equally revealing, a word search for 'market' brings up 14 references. These, when filtered to relate to markets with customers, reduced to just five!

THE PROBLEMS: DIVERSITY AND DIRECTION

The CSIRO reports to the Minister of Science, yet, in its Strategic Plan, it is not the Minister but 'the nation (that) has come out in favour of a

CSIRO working harder on public good ... as well as our commercial mission ... given Australia's low level of corporate R&D relative to other countries' (Page 82, Strategic Plan). Let us examine the situation.

Table 1 shows that the dominant spending on R&D is by business. There are two measures of the CSIRO engagement with the private sector, the 8.5 per cent of its external revenue from business (representing only 1.3 per cent of Business R & D) and the 1.5 per cent received

Table 1: Australian Research and Development 2002-2003

Australian Research and Development Expenditure	\$ millions	\$ millions	% of Total R&D Expenditure
Business		5,978.6	
Amount Spent with CSIRO	77.8		1.3
Higher Education		3,429.6	
Royalties & Licence Fees	63.5		1.9
Government (C'with & State)		2,482.2	
Private non-profit		359.5	
Total Expenditure		12,249.9	
CSIRO Revenue	\$ millions	\$ millions	% of Total Revenue
Commonwealth Grant		639.3	69.9
External Sources			
Australian Private Sector	77.8		8.5
C'with, State & Local Govt	76.8		8.4
Rural Industry R & D Corporations	42.6		4.7
Cooperative Research Centres	32.0		3.5
Overseas Entities	34.3		3.8
Royalties & Licence Fees	13.8		1.5
Adjustment	-1.9		-0.2
Total External Sources		275.4	30.1
Total Revenue		914.7	100.0

Sources: CSIRO Annual Report & Website, ABS, DEST.

from licences and royalties. The Higher Education sector earns more from royalties than the CSIRO.

For the CSIRO there is not much partnership with industry and little to show for past invention. This should come as no surprise as we shall see.

The CSIRO is an organization of some 6,000 staff with assets of over a billion dollars. It has 20 divisions that operate on 60 sites in Australia. Its research interests range from the smallest viruses to the edge of the universe. The applied targets span the needs of the country from health to wealth, covering both public and private good. The question is whether an organization, which is the twenty-first-century equivalent of Renaissance Man in terms of its diversity of focus, can make a contribution so different from that of the Higher Education sector that it will justify its continuing existence.

THE TRUTH ABOUT INNOVATION

The self-defined 'problem' for the CSIRO is: *strategic planning for research with an end point of innovation*. Innovation requires many contributions, often on a complicated, delicate, difficult path, not related to scientific research.

John Kay, in his most recent book, *The Truth about Markets*, discusses innovation, central planning and pluralism. There is no doubt that central planning is unsuccessful and frequently damaging, while pluralism is an important component of market economies.

Kay uses the emergence of the personal computer as a wonderful example of an innovation that defied planning. He sums up by asking, 'Who was in charge of the successful development of the personal computer industry?' The answer is that nobody was 'in charge'. In fact it was difficult to see even a year ahead what might be, let alone plan for it.

Studies of European and United States innovation in the 1980s (confirmed by United Kingdom data in

2001) showed that universities contributed 4 per cent and government laboratories accounted for 2 per cent of innovations. The remainder was made up from industry with 80 per cent, with the balance from its customers, competitors and inventors. Within companies, the commercial staff was twice as successful as the technical staff in choosing winners but still had a success rate of only 55 per cent. So being in the right place, in the market and in the business, are key attributes for successful innovation.

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THE SOLUTION

The most obvious beginning for reformers is to see the CSIRO for what it is: a leftover from the mid-twentieth century that evokes a regulated, paternalist, protected Australia where markets are misunderstood and distrusted. The CSIRO's great days were in providing technical solutions for Australia's farm sector, where producers were unable to fund innovation or capture its fruits owing to its small scale. At that time, Australia's universities were unable to undertake the public good research, so a specialist institution was established.

Those days are now decades gone, but the institution remains like a dead weight on the Australian economy and its contributing scientific base, providing mediocre public sector careers for scientists who are insulated from the increasingly globalized Australian economy.

Because the CSIRO cannot deliver on its mission it should be broken up. It is humbug to take the alternative course and recommend that yet another impossible mission be found for it. The fact is that centrally planned science does not fit with the pluralist character of modern Australia. The intention is not to destroy some of the crown jewels of Australian science, but rather to ensure that they survive in organizational forms that fit better with a different Australia. The divisions should be found 'foster parents'. National facilities and activities devoted to the public good should be tied to the appropriate government departments, while academic activities should go to universities as institutes. Activities that deal with non-competitive agricultural, food and industrial development should be located in free-standing institutions with a mix of government and private-sector support. There is an intriguingly instructive model that policy makers might care to study from the private sector: namely, the recent success of Bluescope Steel and One Steel following their belated divestments from the reforming mothership, BHP-Billiton.

The lesson that emerges from the break-up of large public sector bodies is the release of 'binding energy'. There is no more central management or planning. Management and staff have more freedom to act, their Boards take more interest in them, and their customers are closer to them. They can, in short, flourish.

Tom Quirk is a member of the Board of the IPA. He has helped set up and manage biotechnology companies and before that worked as an academic physicist.

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