

Time for a change of tack on innovation

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Many very good people spend a lot of time thinking about how to kick-start Australian IT into some sort of export powerhouse. Unfortunately, a lot of their ideas are a waste of time because they continue to think of IT as a cohesive, separately identifiable industry, something it has not been for well over a decade now.

Although a convenient term to use in conversation (and newspaper columns) "IT industry" has long evolved beyond a set of companies that manufacture computer systems and sell shrink-wrapped software into a far more nebulous collection of technologies, themes and innovations that reside in many places in many industries.

The idea of boosting our information and technology based exports remains as important as ever, but it is no longer something you can achieve by targeting funding and development programmes at a specific group of companies. Broad 'industry-building' schemes, therefore, are doomed to amount to little more than governments tipping hundreds of millions of dollars in grants and incentives into a very large black hole, never to be seen again.

Nor is it good enough to pick out technology themes as targets for export development. Australia's Cooperative Research Centres are an example of targeting technology themes.

Investing in Australia's capabilities in "wireless technology", for example, could involve anything from antenna design to handset manufacturing, software configurable radios, RFID tagging, video compression or mesh networking. Because of the impossibly diverse range of organisations involved in such activities the complexity of targeting them makes broad development initiatives meaningless. While OK to assess individual grant applications on their merits, it is simply impossible for governments to construct schemes to build a national "wireless export capability". The same applies to "security" or "supply-chain" technology themes.

Once again, this approach will see money dissipated and diluted until there is nothing you can point to as a meaningful and lasting contribution.

So if we want to boost innovation and technology development in this country, especially with a view to boosting exports, how do we pick valid national targets in 2005? We do it, I believe, by focusing only on very specific, real world problems or challenges, and directing funding to initiatives that span any set of organisations and disciplines, as long as they are directed specifically at producing solutions to these problems.

The best problems are well appreciated at home (providing a local imperative to solve them), and common to many countries (providing a global market to sell the innovations created to solve them). The most effective schemes will have healthy competitive mechanisms and reserve significant rewards for winners, so that organisations or groups of organisations are stimulated to work faster and harder. Rewards should go well beyond immediate financial incentives to include a considerable promotional component. Glory as well as gold, in other words.

An outstanding example of a problem centric approach is the "Grand Challenge" sponsored by the Defense Advanced Research Projects Agency in the US, a competitive process offering a relatively tiny direct financial prize (1 million US dollars) to any consortium that solves the specific problem of enabling a full sized military vehicle to navigate and drive its way through 150 kilometres of rough terrain, without a human operator, in less than 10 hours. Academic and industrial participation has been impressive. The spin-off innovations, spanning the fields of robotics, artificial sensing and engineering, will be commercially significant in many industrial contexts.

We can find outstanding catalysts for innovation in healthcare, primary industry and many other places.

Renewable energy problems are a blindingly obvious target in Australia given the vibrant academic community we have, the natural assets available to us (lots of desert, sun and wind), and the growing national consciousness about sustainability and environmental issues. Ideal problems might, for example, pick out specific regional centres and set the challenge of drawing 99 percent of their energy from renewable sources by, say, 2009.

Water management too has an extremely strong local imperative with almost every capital city facing shortages and crying out for innovations to help to navigate the next five years, let alone the decades beyond. The stupefying plan to build an energy-intensive desalination plant for Sydney that is powered by coal, of all things, screams out as an opportunity to drive better innovations through setting up a specific, meaningful challenge.

These problems have high local impetus and high global value. Each would concentrate resources across multiple industries and multiple disciplines (materials engineering, computer science, nano-technology, environmental and social sciences just to name a few). Each would most certainly lead to significant exportable innovations.