Published Article

THE FUTURE OF SCIENCE

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Science in New Zealand, say a number of leading New Zealand scientists, is dying.

We're losing our good people (and their big brains) to more supportive overseas countries and we are the poorer for it. The reason, apparently, is that New Zealand scientists are being increasingly driven to demonstrate short-term commercial applications for their research. No profit in the immediate future? No funding.

The scientists are understandably growing weary of this approach. They point to many of the world's great scientific discoveries and the many years of research that preceded them. They claim, quite rightly, that many commercially successful applications of scientific discoveries were the result of serendipity; the product of true scientific exploration and not some profit-driven linear process.

Play-Doh, fireworks, Saccharin, Post-it notes and microwaves. All discovered by accident by scientists doing what scientists should do - experimenting and exploring. Focus purely on short-term profit motives, they assert, and you can kiss real discovery and scientific progress good-bye.

The funding bodies, one imagines, are sympathetic. They do tend to be staffed by people, who have an affinity for science after all, and not merely 'policy wonks' or 'bean counters'. They seek to balance scientific 'purity' with political and economic imperatives.

But the world has changed. Science is no longer the only contender for the role of saviour of the New Zealand economy. Design, for one, is also staking its claim. Government and the media have looked at the investments that have been made in scientific research over the past twenty or thirty years and are asking some hard questions.

'Where is the return?' 'What do we get for our money?' 'Has science delivered on its promise to transform the economy and our lives?' Confidence has dipped a little, and so the days of blind investments into science have passed. The onus of proof has shifted. Scientists must now show that we, the people, will see a return for our invested tax dollars. And that return better come pretty quick before we lose interest!

This is the reality the funding bodies are faced with and so they must interact cautiously with the science community, emphasizing accountability, short-term returns and commercial application. Unless they do that, the implied threat is that the overall funding pool for science may decrease even more.

It's an unenviable situation that pleases no-one and provides little hope for New Zealand's future.

Yet science funding is likely to get more and more competitive, with focus being placed on whatever scientific endeavour is fashionable in political circles. Commercial return will only become a stronger driving factor. Blue skies scientific research will become harder and harder to find funding for.

So what should the science community do? How should scientists respond to this growing trend? Well, hopefully in some other way than they are currently responding: by leaving the country.

The fact is that the science community being at the beck and call of politicians is only

going to get tougher. Political will tends to wax and wane quickly and scientists in any given area of research may find - all of a sudden - that their work is orphaned by changes in political perceptions of the market.

In this regard the government sponsored funding agencies really only serve as a middleman between scientists and the market. They do their best to guess at what the country or the world might need in the future, then direct their funding accordingly. This speculation may be greatly distorted by the political issues and challenges of the day such that the 'key areas of growth' as directed by politicians may be well off the mark or defined so broadly as to be meaningless.

So why not leave out the middle man all together? Why not go directly to the market for research funding? If scientists can successfully engage with the business community and meet its needs, potentially great benefits flow.

- **Firstly,** while politics and funding regimes can be fickle and unpredictable, the market is predictably motivated by economic self-interest. There are many sectors of the market that understand the need to invest in longer-term research, and there are many sectors of the market that aren't as distracted from particular areas of scientific research as political bodies might be. Patience is, despite preconceptions to the contrary, more likely to be found in the commercial realm than the political realm.

- **Secondly,** while going to the market still requires focusing on commercial applications, a well managed scientific endeavour can reap significant financial rewards, providing funding that can subsidise non-commercial or longer term endeavours. Discover the technology to drive the next iPod today, and you could find tomorrow that you have the funds to start working on that meaty research project that is not yet commercial enough to attract public funding. This is the model that Auckland University's UniServices has pursued, apparently with staggering results. By engaging successfully with the commercial sector (Disney, Siemens, US National Cancer Institute et al) they have grown to be a $100 million turnover enterprise with 15% annual growth. One can safely assume they have the leeway to invest in some slightly less commercial scientific endeavours as a result.

- **Thirdly,** New Zealand is a small country with narrow political interests. The world, funnily enough, is a lot bigger. While a particular field of scientific research may have little appeal to New Zealand's public science funding bodies, the likelihood that someone somewhere may have the vision to fund such research is a lot higher. Suddenly the playing field is global, rather than local.

Interacting directly with the market is not a new idea, but doing it well is no mean feat. And that's where design thinking comes in.

Understanding the mind of the customer, prescience; that is identifying future market needs, managing diversity of input and understanding context. These are the types of design-focused skills that the scientist (or the science manager) must become increasingly skilled in. If you want to interact with the market and woo it effectively, you must speak its language and meet its needs. The CRI, SCION, has recently made a commitment to this way of working and it will be most interesting to track the results.

A recent National Business Review article suggested that 'managers' within the science community should be banished. Doctors in hospitals can, no doubt, relate to the notion that practitioners should determine their own destinies and not be managed by accountants.

But perhaps the answer is not to promote scientists into administrative and commercial management roles, but to find professional managers who understand both science and the commercial aspects of design thinking. Such individuals have the potential to make

scientists' lives and careers a lot more satisfying. The question is where are these people?

If science is to be at least partly devoted to attracting commercial funding (which is far more competitive than government funding, given that it is operating on a global scale) then it needs to follow the path that all other businesses have had to follow, and that means design. Science research organisations need to come to terms with the skills and potential they possess and look for a match in the marketplace.

They must learn to connect with the customers and understand how future customer needs should direct the scientific research process. This is not just about endless market research, but about intuitive understanding and emotional insight - areas that may be unfamiliar territory to the science community and alas to traditional marketing practise.

If customers needs can be identified and a path to a potential (cost-effective) solution identified, then the market will likely show interest. If the number of customers that share the need is high, the interest may be great. If the potential solution is smart and intuitive and 'gets' the customer, then the world will beat a path to the scientist's door.

Some scientists really understand this and get excited; others are reluctant to tread this path. But sooner or later it is likely that New Zealand scientists will find themselves in this position, being forced to interact directly with the market. It will require a culture change and a thinking change. Instead of designing for policy-makers or, heaven forbid, to impress colleagues, scientists will need to join the rest of us in having to navigate the mind of the consumer and understand what they will value and will pay for.

Design thinking is the mechanism the rest of the world is turning to, to achieve this; science would do well to become familiar with its inner workings.