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Press release

Science is what keeps the whole economy in the black and is not a black hole

Any metaphor that compares public investment in science to a black hole is at best ill-informed and at worst dangerously naive. Yet in the *New Zealand Herald*, an editorial on the 10 National Science Challenges recently ratified by Government commented that 'Science has been a black hole for taxpayers' money'. It continued by noting that 'the money is scattered around like water on dry soil in the hope that it finds some seeds of inquiry that will turn out to have social and economic benefits'. The *Herald* may not like it, but to the dismay of central planners everywhere, this is the process behind a significant fraction of global economic growth and the well-being of society.

In New Zealand, as in all advanced economies, publicly funded scientific enquiry has been vital to the economy: our agricultural exports have depended critically on the serendipitous findings of taxpayer-funded science for more than 100 years. Fisher & Paykel Healthcare, one of New Zealand's largest manufacturing companies, was an unforeseen consequence of the work of publicly funded researchers. Even the worldwide web originated as a spill-over from physicists' hunt for tiny sub-atomic particles.

'The question is not whether New Zealanders spend too much on discovery-driven science,' said NZAS President Shaun Hendy, 'but why we spend so little.'

In evaluating the outcomes of science, it is important to realise the difference between science that has a direct commercial benefit and science that adds benefit to the wider economy over longer timeframes. Science with a commercial focus is typically low risk and short-term in nature – it has to be if it is to respond to the market. Many studies show that this type of research is best done by the private sector, and this is why our government devotes a considerable sum of money directly funding research in our companies. Science that has a longer-term focus or that seeks to develop new sectors of the economy must by necessity be carried out by scientists at our universities and Crown research institutes. The market simply does not fund this type of science, despite the fact that it is vital to the long-term growth of advanced economies.

One of the big challenges facing New Zealand is its need to diversify its economy. 'Our dependence on our primary sector contributes to the volatility of our exchange rate, and means that New Zealanders earn less and work harder than the citizens of almost any other country in the developed world', said Professor Hendy. 'To move beyond farming and tourism, we need new ideas and new areas of scientific expertise'.

Major scientific advances, which often come with huge benefits for society and the economy, arise when risk is accommodated, and almost always require serendipity and the unexpected, not to mention new technologies. The new National Science Challenges will redirect science enquiry and application into areas of major public interest, including human health and the environment. These challenges do not alter the nature of the scientific enquiry process, but do have the potential to refocus the efforts of the scientific community along new lines of enquiry and promote uptake of knowledge generated overseas by up-skilling the New Zealand science workforce. It remains vitally important that these challenges break new ground.

How the science community, the public and the Government front up to these challenges will determine whether they live up to their potential. And right now, scientists around the country are working hard to ensure that each of the National Science Challenges will stretch their abilities and their imaginations.

Scientific discovery is not a 'nice to have', it is a 'must have'!

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