



Australian Government

Chief Scientist

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**LAUNCH OF CIE REPORTS ON THE IMPORTANCE OF
ADVANCES IN THE SCIENCES***

Measuring our reliance on science

******* CHECK AGAINST DELIVERY *******

11:30am – 12:30am

Friday 22 January 2016

**The Shine Dome
CANBERRA**

***Report titles in full:**

“The importance of the advanced biological sciences to the Australian economy”

“The importance of recent advances in the physical, mathematical and biological sciences to the Australian economy”

We are here today to launch an analysis of the contribution of recent advances in the sciences to Australia's economy – and by extension, all the people the economy sustains.

The last part of that sentence is important. *The economy is not an end in itself.*

It doesn't deliver what we need through the people we think of – or who think of themselves – as economic gurus.

It is the Australian people who make it work – and sometimes we don't do it according to the model, or the theory.

But the economy provides the context in which we set out to make our future, and it must be designed to support what we want or choose to do.

We can't have everything we want, and we can't do everything we might consider choosing. So we've got to work out how to support what's most important, most intelligently.

When we understand the context we can do a better job of it. Seeing what's possible. Sorting the options. Agreeing on the means. And setting about them.

When I want to understand the economy I talk to economists. Not all economists – and not only economists, because there are limits to the explanatory and predictive power of any models or theories, where important and complex real-world phenomena are concerned.

Science and research are all of those things: important, complex, and happening in real time.

Is their impact hard to measure? Yes.

Is it important that we measure it? Yes.

Could it be done with rigour and credibility? Yes.

Was it worth making the effort? Yes.

So we did. We commissioned the Australian Academy of Science to undertake the exercise - first for the advanced mathematical and physical sciences, and now for the biological sciences. They found the necessary expertise in the Centre for International Economics.

We will hear more today about the findings, but here are some of the key ones:

- More than a quarter of Australia's economy exists due to scientific advances over the past 20 to 30 years.
- That's a \$330 billion contribution every year.
- Those same advances account for more than 1 million jobs (1.172 mil) and \$84 billion in annual exports.
- Advances in the biological sciences alone account for close to half a million jobs (464 thousand), 3.6 per cent of economic activity and health improvements worth up to \$156 billion a year.
- The burden of disease in the community is 18 to 34 per cent lower than it would otherwise have been – which is an economist's way of saying that people owe not just their lives, but their *enjoyment of life*, to science.

I expect that people will quibble the finer details of the numbers – which is why we publish the analysis, so they can. There will be a few who will question the bigger conclusion – even if they have to build a straw man to do it.

The overwhelming message is very clear and consistent with evidence gathered by many different investigators across the world.

Without advances in STEM over recent decades:

- our economy would be far smaller
- our industries far less competitive
- our jobs greatly depleted and our incomes less secure.

We would suffer, and some of us would die, from conditions we can diagnose and treat today.

We would not have important knowledge to protect our treasured places – however limited our use of that knowledge may have been.

We would not have the capacity to look at the future in the expectation it will be better than the past.

I think that's important knowledge. I hope it's understood on those terms by Australians.

This is the final report I will put to them as Australia's Chief Scientist. It might be the last time I speak publicly in that capacity.

I thought I might take a leaf from President Obama.

In his final State of the Union address this month, the President set out four questions for the people of the United States to answer.

1. How do we give everyone a fair shot at opportunity and security in the new economy?
2. How do we make technology work for us, and not against us, as we solve our biggest challenges?
3. How do we keep America safe and lead the world without becoming its policeman?
4. How can we make our politics reflect the best in us, and not the worst?

Broaden the third, to include the welfare of all the planet's inhabitants, and you have as good a list as any of the challenges of our place and time.

The President gave a long answer, because he's the President. I will give a short one. Science.

And a slightly longer one: Science, technology, engineering and mathematics.

Without them, our challenges must defeat us.

With them, we have at least a chance – if we have the wit to do something about it.

We can. Let's see that we do.