

SCIENCE MATTERS

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Introduction to Science Matters



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Science has been part of our very existence for a long time – from helping early Homo sapiens to respond to the challenges of survival in unstable environments. So is that why we seem to take it for granted? Do we presume that science will be there when we need it, because it always has been?

Australia's future depends on a strong science focus today

Ian Chubb

Chief Scientist for Australia

We are often told in public commentary that the Australian economy is in transition — that we need to use our talents and skills to cope with changes in demand for commodities, and develop high value-add goods and services for local and international markets.

The question is: what would it take to make that transition?

We can identify areas where we need to make sure we have action. It is suggested, for example, that Australia could be a food bowl, that we could have a burgeoning biotechnology sector, that we need to understand any impact of planetary warming on us and how different regions will be affected.

We need to be alert to the risk of pandemics and the overall health of our whole population, and be concerned about our security both national and personal. The list goes on.

Science and the knowledge it provides, along with its applications, will help us manage, mitigate, adapt or even discover solutions to the problems we know about, and allow us to tackle others as they emerge. It is not a big stretch to suggest that science will be close to the core of most of the 'solutions' we develop.

It will not be science on its own, though; the humanities and the social science disciplines will play their part.

Of course, part of ensuring our best possible future is learning from past experience. But we also need to understand what is happening to our planet right now: to the oceans, the atmosphere

and health. And we need the capability to innovate to make life better for more people.

Links in the chain

We know that addressing most issues will need an interdisciplinary approach. There is little room to doubt that some (probably most) of the big issues that confront us fall outside the boundaries of a single scientific discipline.

But somehow, the notion that we need the disciplines to work together appears to have led to a diminished focus on the disciplines themselves. This would be a particular problem if that loss of focus was on those disciplines that are at the core of many others: physics, chemistry and mathematics.

The need for strong disciplines is the focus of this book. We have long known that a chain is as strong as its weakest link. It is inconceivable that we could do what we need to do, let alone do what we should do, if any or all the disciplines that underpin our efforts are weak.

If we are to ensure that they are not weak, we have to explain why they are important. We have to do so in a context where they appear to be taken for granted.

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So is that why we seem to take it for granted? Do we presume that science will be there when we need it, because it always has been?

We can't afford the presumption. We don't all have to be scientists or technologists or engineers or mathematicians, but enough of us do. We have to work to ensure that those among us who want to be scientists have available the best possible opportunities and to produce knowledge we can then use to sustain us.

We began by thinking (in very broad terms) what Australia could aim to be by 2025. Naturally, we looked at all that was said and written about the future — and we were fortunate to have just emerged from an election campaign in which there was some focus on a national aspiration.

We pulled it all together to produce a succinct statement broadly outlining what we took to be the key elements in what we saw and heard:

The aspiration

Australia in 2025 will be strong, prosperous, healthy and secure and positioned to benefit all Australians in a rapidly changing world. We are told that Australia will need a diverse economy built on sustainable productivity growth, knowledge-based industries and high value goods and services.

We approached 12 senior figures in a range of disciplines and invited them each to prepare a 1,200-word piece answering the question: how will your discipline/area help to realise this aspiration?

To broaden the perspective, we invited two other experts to write 200-word comments on the same question — not critiques of the longer article, but their view.

The series was co-published on The Conversation website and through the Office of the Chief Scientist, and now as a book.

I hope that you find the content of this book interesting, useful and, indeed, stimulating. In particular, I hope that secondary school students will see that these (and other) disciplines are such key contributors to Australia's future, and so compellingly interesting in themselves, that their study choices will be made easy.