

# Science the key to prosperity

**Peter Klinken**



When three endearing little robots — Aggie at the Art Gallery of WA and two at WA schools — made headlines recently, it made my day.

Not because of the sophisticated technology that makes them so “human” but because I believe as our children interact with them they will gain an implicit, even subliminal, appreciation of the wonder of science.

Of course, humanoids like Aggie were still the stuff of fiction when my love for science began — and the source of my inspiration was far less exciting than a walking, talking robot.

I received a university level biology textbook as a Year 10 high school prize and, after putting it away for a year, I eventually picked it up to study for my biology exam.

From the first page I was fascinated, especially reading about the new science of biochemistry. I decided then and there to become a biochemist and the passion lives on!

As Chief Scientist of Western Australia, my role is to provide independent science advice to government and to assist in creating economic growth through science.

Science affects virtually every aspect of our lives, has been crucial to WA's development and is essential for our future.

I believe Australia is at an important juncture and critical decisions that will define this nation need to be made immediately.

We must embrace the rapid changes globally and continue to be a world leader in science.

Australia must redefine itself rapidly to determine its own destiny or risk losing its current position of strength and miss exciting new opportunities for the future.

To my mind, we face a number of significant challenges.

As a nation we have become increasingly risk-averse. Great benefits can accrue from supporting risky projects and much can be learnt from



Illustration: Toby Wilkinson

“failure”. It is time to encourage risk-taking across the board and provide clear signals that “failure” is acceptable.

Additionally, Australia has benefited from a sound regulatory system but I feel we are in danger of becoming over-regulated, constraining new opportunities.

In my view, too much attention has been focused on competition within the country.

While promoting excellence through competition has great merit, too much energy can be dissipated on internal competition.

Collaboration enables Australians to compete better internationally.

The real competition is global, not local.

Australia also faces significant challenges securing a workforce that is capable in science, technology, engineering and mathematics (STEM).

My time as a high school chemistry teacher while I was writing my PhD thesis gave me many insights into the

importance of engaging students in STEM. I find the relatively low number of high school students undertaking science and mathematics subjects alarming.

In my opinion, these subjects should be compulsory in Years 11 and 12 and universities should reintroduce prerequisites for courses that require STEM.

Parents also have an important role in inspiring children to develop a love for learning about science and mathematics.

Importantly, scientists and mathematicians need to explain the significance of their work to students and the general public in simple terms.

One area Australia must improve on is the engagement between industry and academia.

Companies can find it difficult to navigate the arcane world of research organisations and identify experts interested in solving their real-world problems.

Industry often views researchers as cynically

seeking a source of funds without genuinely contributing to the partnership.

Conversely, academics are measured by publications and grant success with few incentives to engage with industry.

The WA Government's recent science statement Growing Western Australia targets mining and energy, agriculture, medicine, biodiversity, marine science and radio astronomy.

These priorities will help align research efforts across industry, universities, research institutions and government.

While mining, energy and agriculture will contribute most of WA's exports, it is imperative the State diversifies and grasps opportunities in other areas, such as the life sciences.

A soaring example of the potential of WA teamwork took place this month when Perth hosted the three-day Science On The Swan conference.

Researchers from the US, Singapore, New Zealand, Britain, Thailand and Australia highlighted medical

technologies under development in partnership with industry.

International science educator and broadcaster Dr Chris Smith, of “Naked Scientist” fame, described it as “the best science conference I have ever attended”.

Its success no doubt arose from the strong co-operation between our State's universities, research institutes, hospitals and the Department of Health.

One advantage of the Australian population being concentrated in a limited number of metropolitan areas is critical mass, which increases opportunities for innovation, collaboration and creativity.

Perth is a rapidly maturing city blessed with many wonderful natural assets and burgeoning cultural, musical and food scenes.

This is the vibrant atmosphere in which the growing “creative class” can thrive.

To build on this, I believe there are three key elements to expand innovative science and technology.

The first is the physical environment, which includes developing science parks, incubators, accelerators, et cetera, in a co-ordinated way, enabling scientists to become more entrepreneurial.

Second is the emotional environment to provide supportive mentoring and encourage risk-taking.

The third is financial support to commercialise exciting new ideas.

The WA financial sector understands risks associated with funding mining or oil and gas projects, but is much less comfortable supporting areas such as the life sciences.

With these elements in place, Perth will become a global hub of innovation and creativity.

Together with our enviable weather and lifestyle, it will be a highly attractive destination for innovators from across the planet.

Conversely, like our exciting new humanoid robots, WA's “creative class” is highly mobile.

If they are unable to fulfil their aspirations locally, they are likely to move elsewhere.

■ This article is the first in a series by WA's chief scientist, Peter Klinken