

Gearing up for changes heading our way

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Scientia potentia est. knowledge is power. We've been saying it, in many languages, for at least 13 centuries. It stands the test of time because it's true. History is written by those who get to the future first.

The Industrial Revolution is a case in point. Between 1750 and 1860, per capita industrial output in the United Kingdom almost quadrupled. Over the same time, average life expectancy rose, infant mortality fell, and on some estimates blue-collar real wages more than doubled. It was technologies such as the power loom, the cotton gin and the steam engine that made it possible, and the commercial nous of the industrialists brought it about. *Scientia potentia est.*

Progress, of course, always comes at a price. Machines took the livelihoods of human craftsmen, not just the lace-workers of Lancashire but the weavers and dyers displaced in Bombay and Nanjing as well. The early generations of factory workers toiled from stunted childhoods to premature deaths in appalling conditions. And while the use of fossil fuels greatly advanced our living standards over time, it also set global carbon dioxide emissions on a path to exponential growth. Today our emissions are changing the amount of carbon dioxide in the atmosphere about 10 times faster than at any point in the past 66 million years. The consequences will be ours, for centuries if not millennia.

Would we march back to the Stone Age, if we could? Of course not – and we have no right to impose a life of bare-bones subsistence on those whom progress has so far left behind. We do have to recognise that progress is a common goal, and the power of knowledge has to be harnessed wisely to the common good.

Hence the title of the summit, 'Knowledge Nation'.

Its goal is not just an Australia with a few more knowledgeable scientists and companies, but a country that makes the value of knowledge its organising principle.

In that nation, all children would enjoy an education that sharpens their curiosity and gives them the skills to be part of the future economy. Government would harness scientific evidence as a matter of course. Companies would grow at the technology frontier, developing new-to-world innovations; and many *more* companies would see new business potential in other people's ideas.

Above all, we would trust Australians to face up to the magnitude of the changes heading our way, and judge the trade-offs along each possible development path.

We have some impressive runs on the board already, and not always in the obvious places.

Look at international education, mining technologies and the stunning growth of local fintech firms to see the pace-setters of today's economy.

But the future, as they say, is not evenly distributed. There are still too many students in schools without appropriately qualified and supported science teachers; and too few examples of great research translated to commercial success. Women with science and engineering talent have been under-served. Workers in the professions most exposed to automation are looking to the future with justifiable concern.

What will it take to bring all Australians into the knowledge nation?

Public policy must be part of the answer, as the International Monetary Fund reiterated last week – with the qualifier that the policy must be good. That point won't be lost on anyone who lived through the Cold War. One great power, the Soviet Union, tried to enforce progress by government control. Another, the United States, enabled its people to be entrepreneurs.

The Soviets watched in pain as the Berlin Wall came down in 1989, just as the Americans commenced the Human Genome Project, incorporated the first commercial internet service providers and prepared to launch the Hubble Telescope into space.

The basic elements of the phenomenally successful post-war US innovation strategy are still the pillars of sound public policy today.

Governments do best when they provide the essential inputs that markets cannot, such as universal education, capital for high-risk research and a sensible regulatory environment. Individuals and companies flourish when the public inputs and the commercial drivers work together to encourage ideas. So nations, in turn, need leadership and a shared direction.

We know enough today to justify bold plans, and we can commit to learn more as we go. Knowledge is power, in public policy as much as daily life.

And come 2020, where might we be heading? I don't know – but I do know I want knowledge to define the direction.

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