

# Why Australia needs to become Asia's innovation partner

By [Andy Hall](#) and [Jen Kelly](#)

*Asia is emerging as a major hub of agrifood industry innovation. What sort of public and private sector investments are needed to make this a win-win collaboration that strengthens both Australia and its Asian partners' ability to innovate for a sustainable and prosperous future?*



**If Australia wants to be a participant rather than a casualty of the Asian century, it needs to engage with Asia's huge and growing capability and invest in innovation**

## Introduction

Asian economies are growing rapidly and the region is emerging as a major innovation hotspot. Some countries, such as Singapore, South Korea and Japan, now exceed Australia on the [Global Innovation Index](#), and other smaller economies, although at a more formative stage, are catching up quickly. Science, technology and innovation have always been an important part of Australia's trade and economic diplomacy presence in the region. An opportunity exists, however, for a new form of regional collaboration where the primary purpose is to co-develop innovation capacity. This recognises that Australia's innovation capacity is not only held within its national borders but also includes the innovation capacity of other countries that it trades and collaborates with. Increasingly, those other countries are the emerging economies of Asia. The relationships created

through this new form of collaboration will be critical to Australia's ability to harness innovation for a prosperous and sustainable future.

## **The resurgence of Asia**

Following in the footsteps of the twentieth century success of Japan, South Korea and Singapore, a new cluster of Asian countries, led by China and India, have achieved staggering levels of economic growth since the start of the 21st century. There are predictions that by 2050, three of the four biggest economies in the world will be Asian. China and India are tipped to take first and second place with the United States pushed into third place and Indonesia fourth. Countries like Vietnam and the Philippines are also rapidly moving up the rankings. Welcome to the Asian Century.

Singaporean intellectual [Kishore Mahbubani](#) captured the spirit of this shift in global economic power when he said "the last two centuries of Western domination of world history have been a major historical aberration. From the years 1 to 1820, the two largest economies of the world were those of China and India. All historical aberrations come to a natural end. Therefore the Asian Century is irresistible and unstoppable."

## **Asia as our innovation partner**

Australia has no choice other than to actively engage with the economic resurgence of the Asian countries on our doorstep. We have existing trade and cultural links and traditional exports, including agriculture and food commodities that play well into the emerging demands and prosperity in the region.

But it would be huge mistake to plan our engagement around the idea that Asia will simply be the new manufacturing hub of the world, giving us affordable consumer goods, and that in exchange, Australia will just be the delicatessen grocer to the region.

If Australia wants to be a participant rather than a casualty of the Asian century, it needs to engage with Asia's huge and growing capability and invest in innovation. Asia needs to be recognised not just as a trade partner but as an innovation partner.

Australia's long history in public agricultural science (both in CSIRO and Australian universities) is one of its core strengths in the agriculture and food sector. Of equal importance is Australia's experience of different models of mobilising technology for industry innovation.

But the leaders of Australia's agricultural research and development (R&D) community cannot rest on their laurels. They need to adapt to a new role that is more focused on facilitating business and innovation engagement with Asia. Fostering such partnerships will help Australia access and adapt Asian innovations into the Australian context and vice versa.

The [innovation figures in China alone are staggering](#). China is the second largest spender on R&D after the US, accounting for 21 per cent of the world's total expenditure in this sector. But China is not an anomaly. Elsewhere across the region, a picture is emerging of Asia as the new centre of gravity for innovation. The Asian tiger economies of the late 20th century are already way ahead of Australia's ranking of 23rd in the 2017 Global Innovation Index, with Singapore ranked 7, Korea 11, Japan 14 and Hong Kong 16.

Small economies in the region are also starting to catch up with Australia. The [Global Innovation Index](#) highlights the growing innovation capacity of Vietnam, ranked 47, Thailand 51, the Philippines 73 and Indonesia 87. Much of this is built on public investments in R&D, education, digital and other infrastructure, and economic reforms that have encouraged foreign direct investment and unleashed local entrepreneurial activity.

### **Innovation in agriculture and food**

The successful emergence of Asia as an innovation hotspot is not restricted to hi-tech and manufacturing sectors. It includes agriculture and aquaculture. Thailand and Vietnam are two of the world's biggest agricultural exporters. While rice was historically the main export crop, there has been considerable diversification recently. Aquaculture has emerged as a major industry serving both domestic and international markets. The region produces 40 per cent of the world's cultivated seaweed. Since 2000, [global prawn aquaculture production has grown 230 per cent](#), almost all of which is accounted for by South East Asian countries and China. Asian countries are now also major players in coffee and cocoa global value chains.



**In recent years, Asia has emerged as a major player in global prawn production, evidenced by these aquaculture ponds in Thailand.**

In the poultry industry, the Thai company Charoen Pokphand Group (CP Group) has driven innovation and is now the world's largest producer of cooked, chilled, ready-meal poultry products. This was achieved after the sector reorganised itself in response to an outbreak of avian influenza in Thailand that resulted in the loss of key raw poultry export markets.

The Philippines' fast-food chain Jollibee Foods Corporation has a growing regional footprint, backed up by inclusive supply chain innovations. Indonesia's Indofood company now has a significant presence in West Africa selling instant noodles. At the same time, Chinese and Thai companies, including the CP group, are starting to invest in the Australian and New Zealand dairy and sugar sectors.

India also has a vibrant agritech start up sector with a huge diversity of digital-enabled solutions, attracting nearly \$300 million in venture capital investment in 2016 alone. These range from a start-up company that leases tractors and farm equipment (Uber-style) to thousands of villagers, to digital knowledge hubs for farmers who use apps to monitor plant and soil health. With India expected to become the second largest market for precision agriculture after the US, we can expect explosive growth in innovation in the Indian agritech sector.

It is probably a safe bet to predict that the next generation of global agrifood companies will be Asian.

## **Implications of Asian innovation for Australia**

So what impact will Asia's development into an economic centre of knowledge-based innovation have on Australia? It is easy to comprehend that the rise of Asia means increased spending power in the region, new markets for Australian agriculture and food commodities, new waves of direct foreign investment and maybe even new revenue sources for cash-strapped Australian R&D organisations.

What is much more difficult to grasp is the idea that increasingly, Australia's ability to innovate will be a function of the ability of Asian countries to innovate and the degree to which Australia is linked to the innovation processes in those countries.

To understand this synergy, it helps to remember a few things about innovation. Firstly, innovation ideally involves both business and R&D, with policy oiling the wheels through incentives and keeping everything on track with regulation. Secondly, innovation is a team sport. In the Asian century this means collaboration between Australian and Asian businesses and public R&D organisations.

So Australia's ability to innovate is not just contained within its national borders, but is fueled by participation in other geographic centres where there is dynamic innovation activity. Historically, this meant Europe and North America, but in the future this means Asia.

Lastly, innovation comes in different national styles suited to the nature of the market, history and politics of a particular country. For example, India's pioneering work on frugal innovation for low-income markets or Japan's long-term innovation collaboration between the public and private sectors. Understanding how to innovate in a particular national setting is critical to the success of businesses in these markets.

Taken together, given the linkage of Australia's value chains and business into Asia, if we are to take advantage of global and regional market opportunities ahead, our businesses and R&D organisations need to be deeply connected to Asia's emerging capacity for innovation.

## **Opportunities to co-develop innovation capacity with Asian countries**

Australia is already repositioning in response to the evolving innovation landscape of Asia. Recently announced was the \$3.2 million [Regional Collaborations Programme](#) as part of [Australia's National Innovation and Science Agenda](#). It is an important signal, acknowledging that regional innovation collaboration needs to be an integral part of national efforts to enhance and accelerate our own innovation performance.

After making the case that the Asian century is centred around the rise in Asia's innovation prowess, it seems paradoxical to suggest that Australia's entry point should be to assist with capacity-building efforts. The reality is that in countries like Indonesia and Vietnam, while innovation is a priority for public sector investment, this has not yet necessarily gelled as stronger capacity for innovation. This is despite many of the building blocks being put in place, including conspicuous investments in research and policy reforms to encourage direct foreign investment, and support schemes to encourage local entrepreneurship.

Among the many things holding back innovation capacity in emerging Asian economies is a history of poor relationships between public research agencies and the private sector, and limited R&D and innovation capacity in companies, particularly small and medium-sized enterprises. Then there are the challenges of supporting innovation in the agriculture sector, where the majority of producers operate at a small-scale. Limited uptake of new technologies by the poorest farmers has frustrated public agencies and private agribusiness suppliers for decades. Add to this, a challenging development agenda in many countries in the region, where the skewed distribution of the benefits from growth, and looming environmental challenges - in some cases exacerbated by poor governance - could derail the whole Asian Century dream.

### **What collaboration might look like?**

What is interesting about these emerging Asian economies is how much is already being done. Recent scoping work by CSIRO in Vietnam suggests there is already significant investment in international research collaboration, trade and business collaboration and in incubators and start-ups. The [challenge](#) is how to knit these various pieces together into a joined up capacity for innovation.

The missing pieces include:

- the capacity of researchers and companies to collaborate around the development, market testing and commercialisation of technologies
- the ability of the private sector to access technology and expertise locally and internationally
- commodity or industry growth plans that support technological change and collaboration arrangements.

To address these issues, the Australian and Vietnamese governments are working on a collaboration that will establish and test novel innovation support arrangements. These will focus on capacity development for the commercialisation of technologies, and also analysis of policy gaps and bottlenecks. The approach could inform policy about how to best support innovation.

Bringing an Australian agency into Vietnam to support this type of capacity building could help build connections between the emerging innovation capacity in the country and counterpart organisations in Australia.

In a similar way, in Indonesia CSIRO helped establish the independent Indonesian Food Innovation Center ([IFIC](#)), which aims to foster collaboration between public research and the Indonesian food industry. Part of the long-term plan is to help companies upgrade their innovation capacity, which in turn makes them more attractive innovation collaborators for Australian businesses and R&D agencies.

Another model is being pursued by Murdoch University, which has used its Singapore campus as a base for building partnerships with the emerging Southeast Asian agritech sector that operates out of the city state. [Murdoch has leveraged this partnership](#) to bring high-tech agriculture solutions that can help with economic revitalisation to the Peel district in Western Australia, where its main university campus is located.

These are just some examples of the way Australia can help build Asian innovation capacity and in the process open up new modes of innovation collaboration.

### **Where to next?**

Most OECD countries recognise that access to knowledge and innovation located beyond national borders is critical for continued prosperity. For example, the UK's [Newton Fund](#) is investing A\$ 1.2 billion to support capacity building and innovation capacity building in emerging economies. The Asian Century is generating an emerging centre of gravity for knowledge and innovation. Capturing the opportunity to connect Australia's innovation system with Asia will support the long-term prospects for growth and sustainability in the agriculture and food sectors, and in the economy more generally.