

IRU Response: ISA 2030 Strategic Plan - Issues Paper, 2017

The proposed ISA 2030 Strategic Vision is:

We want an Australia counted within the top tier of innovation nations, known and respected for its excellence in science, research and commercialization.

Innovation, which can underpin a diversity of internationally competitive industries, will enable today's and future generations to have meaningful work, and a great quality of life, in a fair and inclusive society.

The IRU, as a long-time advocate and contributor to innovation through the graduates and research we produce, supports the progressive vision of the ISA Strategic Plan. Innovation delivers opportunity for economic growth and prosperity; it creates jobs, new products and services, and contributes to social wellbeing. It will be crucial to how Australia creates a viable economic and social system for the coming two decades.

IRU support for a stronger innovation system

The IRU is committed to a stronger and more coherent innovation system. Over recent years, we have argued strongly for the need to strengthen [industry driven research](#) with a sustained focus on improved incentives for business and other potential end users to take greater advantage of the depth of research capacity in Australia through the universities and other research bodies¹.

The corollary to this is a well-funded and enabled research system that supports the breadth of research activity. A flourishing innovation system has long-term incentives, deep and sustained investment in infrastructure; and is well positioned across Australia, not limited to inner city research concentrations.

Within this, each university should have the incentives to be active in shaping and developing their innovative culture, with support for bespoke hubs to support effective interaction with the innovation system drawing in those seeking to be part of it.

IRU support for the Strategic Plan: Overview

NISA is an ambitious, broad and iterative agenda. It requires a "roadmap" to shape its effectiveness and long-term context. The development of an ISA led, 2030 Strategic Plan is a concerted commitment to see NISA realised. The IRU recognises and endorses this commitment to nurturing an innovative culture and eco-system.

The ISA Issues Paper indicates an intention to strengthen, advance and deepen the connection between business and research, an imperative for any innovation driven economy. A greater emphasis on proximity and collaboration is also recognised and if achieved will generate new and innovative developments and synergies and crucially, enable the translation of research, and its commercialization.

Universities should be viewed as linchpins in the strategic planning and implementation. As respected, established and adaptable institutions with deep connections and involvement with their local, regional and international communities they will provide expertise, knowledge, networks, research capability and infrastructure.

¹ <https://www.iru.edu.au/wp-content/uploads/2017/02/IRU-Industry-Driven-Research-2016.pdf>

Linchpins need to be recognised, supported and well resourced.

In the short term, Governments will often face fiscal pressure to contain expenditure, as is currently the case with the Higher Education Package. Faced with revenue reduction there will be pressure on universities to strengthen graduates' readiness for the changed world of work of the 2020s. Stunting a vital and integral part of the innovation system during a development and formative stage, impedes and risks the ISA vision for an innovation nation. Cuts and uncertain funding impact capacity to engage at the edge and frontiers of innovation. The current measures would see universities forced to look inwards and shift into maintenance mode, protecting teaching and research output, narrowing and sapping their capacity for an innovation focus.

IRU acknowledges that there is an important coordination and interface role for the ISA to work with all stakeholders, including government. The six challenges identified in the Issues Paper need to be viewed as interactive and co-dependent, not separate or ranked. They should be viewed as bellwethers in the structuring and progression of the innovative system.

The six challenges

The IRU supports and endorses the six challenges outlined in the Issues Paper.

1. Moving more firms, in more sectors, closer to the innovation frontier
2. Moving, and keeping, Government closer to the innovation frontier
3. Delivering high-quality and relevant education and skills development for Australians throughout their lives
4. Maximising the engagement of our world class research system with end users
5. Maximising advantage from international knowledge, talent and capital
6. Bold, high-impact initiatives

The following sections explore some of the challenges involved and areas for action.

Innovation across all Australia to benefit all: an intentionally distributive approach (challenges 1-5)

Each of the six challenges should explicitly address how it can be more easily achieved through intentionally [building regional research and innovation systems across Australia](#)².

The concentration of Australia's population in a few major cities poses major challenges. There is an urgent need to make better use of the potential from the breadth of the country, for example from its northern regions, to reduce the pressure on the major cities and create positive outcomes for all current and future Australians.

Australia should be a continent with multiple sites of excellent research, addressing both fundamental research and research driven by end users. Encouraging further concentration of research output to a small set of city centric universities will only hamper future opportunities.

Investment in Australian universities outside the major cities pushes each region towards the critical mass of researchers, innovative businesses, and knowledge workers to support a more diversified, future Australia. Critical mass is a relative term and a 'minimum' amount of researchers, businesses etc. should not 'disqualify' a region.

² <https://www.iru.edu.au/wp-content/uploads/2017/02/IRU-Building-Regional-Research-Systems-Across-Australia-Research-Series-3.pdf>

Successful innovation systems across Australia are part of the solution to how future Australians can draw sustainably on Australia's physical resources and continue to live in prosperity. It is crucial to the success of NISA to stimulate innovation across all regions of Australia.

This requires each region to have an effective research system capable of supporting research, linking it to industry and other users. Research:

- that is done in the region by researchers who live in the region
- from the region that is relevant across the world, and
- for the region, addressing its particular needs and characteristics.

IRU members are already leading the way in building these research systems. If we can expand this process, we will stimulate prosperity across all parts of Australia, including its major cities. The challenge is not just the quality of research and the extent of innovation but also the infrastructure essential for the knowledge economy including reliable digital access and high levels of education.

The challenge is to generate the positive spiral from the interacting factors. If regions are able to drive knowledge-based economic growth, they will be able to attract more innovative industry, altering the balance of population growth within Australia.

This is not an argument about "regional equity". The Strategic Plan should identify regions as key drivers of sustainable growth that reduces the pressure on Australia's major cities.

Tiers of Government (challenges 1-5)

A major challenge not addressed in the Issues Paper is the necessity for the three tiers of government to attend to the prevailing lack of coherence, and collaboration. An innovative system, as imagined in the vision statement, will not be realized without concerted and deliberate effort to ensure the three tiers of government interact in functional and cooperative ways. In innovation speak – convergence is an imperative.

Student choice and workforce planning (challenge 3)

Recent analyses of the future workforce tend to concur that by 2025 or 2030 many current jobs will not exist or will be very different in nature. Some estimates are that up to half of jobs will be substantially affected. These predictions will have some aspects right but equally, based on past experience with similar assessments, will not have seen many of the changes to come and will overstate the significance of others.

The more positive analyses argue that new jobs will emerge, with an emphasis on knowledge worker roles and on worker creativity as the way to continue to have valuable employment for most Australians. This has been the response to previous changes in the way in which we learn and work.

The forces at work include the impact of digital technologies, continued mechanization of roles with significant levels of repetition, and further integration into world economies both of the immediate Asian region and across the globe.

In considering the implications of 50% of jobs not being present in twenty years, it is valuable to reflect on expectations in 1990 of future workforce. This was before email or the internet were in common use. In effect, almost every job in Australia now has altered in significant ways over the past two to three decades and some notable roles from the past have been lost.

This does not mean that we will sail easily into the 2020s, but it does show that continued changes can be integrated.

Since 2012, with a lead in from 2009, universities have been funded for each student they enrol. Applicants and universities determine the balance of courses which are studied and the distribution of graduates across degrees and professions. From time to time, this is dismissed as letting 18 year olds determine the future of the country. The comment ignores that 66% of commencing undergraduate students are over 18. More importantly, it presumes that estimates of future employment needs should determine which degrees students can enrol in rather than be useful information to guide applicants.

The logic is strong to support students pursue their individual interest, based on their assessments of what they want to learn and what is likely to support them in the future. The predictions for major changes in job roles combined with past evidence that predicting workforce needs beyond a short time horizon is usually more entertaining than accurate argues against a strong workforce planning approach to higher education course decisions.

The [growth in university graduates through demand driven funding](#) has been strong but not uniform. The greatest growth has come in science, technology and engineering courses and in the health professions³. Despite this, there are regular claims that demand driven funding is producing too many lawyers, accountants and arts graduates⁴, based on assumption rather than a good look at the data.

The science and technological growth supports the aim of both the Government and Opposition for greater number of STEM graduates. However, in terms of workforce planning, there is a challenge from growing STEM numbers. The employment data, as analysed by Andrew Norton of the Grattan Institute shows that many STEM graduates do not have immediate employment success, although over time, like most graduates, the earning benefit is clear⁵.

Hence, workforce planning that drives enrolments, rather than informs potential students, runs up against differences in current needs to potential future ones.

Further, in the context of developing the knowledge based industries that thrive on innovation, it is the unexpected that causes the greater impact. Workforce planning tends to be limited by extrapolating from the current, with little capability to guess the future.

Estimates of future workforce needs should inform potential students but should not control students' choice of course.

Engaging internationally (challenges 1-5)

The current focus in Australia and many parts of the world is on stronger national borders, stronger control of people movement and a greater suspicion of ideas, goods and people from elsewhere. This sits uneasily with the assumptions of an innovative future, where ideas from all areas need room to flourish. Against the challenge of reasonably small Australian markets, success for many will involve selling to customers in multiple countries.

It is important the Strategic Plan be clear about the importance of advanced services and goods flowing between countries for its ambitions to be achieved. A narrow Australia only focus is inimical to a successful innovative Australia.

³ https://www.iru.edu.au/policy_submissions/impact-students-university-part-1/

⁴ For example Jennifer Westacott, CEO of the Business Council of Australia to the Universities Australia conference (28 February 2013) and Osman Faruqi, former Greens Higher Education Advisor in The Australian 3 February 2016

⁵ Figure 33 of *Mapping Australian Higher Education 2014-15*, Grattan Institute, updated in January 2015.

Placing Australia securely within the network of global research and innovation is essential. This involves being positive about Australia's capability to continue to be a significant player in world terms and realistic that we will be one among many players in an ever more complicated set of global research and innovation networks.

Australia produces about three 3% of world research output. As benchmarks for comparison Australians represent only 0.3% of the world's population and Australian economic activity is approximately 2% of world GDP. Hence Australia's research output is relatively strong but as a small contributor to the global research effort it cannot operate independently of research across the world.

Conducting high-level research increasingly requires the involvement of teams of researchers working within multiple institutions across many countries. This has led to international research collaborations growing at a significant rate.

The paradox is that while many research issues increasingly require the interaction of considerable resources to be pursued effectively, the rapid changes in digital technology and their impact on communications means that researchers from all universities can be effective members of world wide networks.

In terms of practical activity to achieve this Australia should look to regional groupings in Asia to help open up our research and innovation systems supporting the creation of [an Asia Research and Innovation Network](#)⁶.

Universities are the key foundation, platform and partner in achieving the vision of ISA 2030 to drive sustained strategic innovation through the Australian economy.

7 June 2017

⁶ <https://www.iru.edu.au/wp-content/uploads/2017/02/Strengthening-Research-in-Asia-Publication-2016.pdf>