

Navitas Submission to Innovation and Science Australia's 2030 Strategic Plan - May 2017

Summary

Navitas welcomes the opportunity to contribute to this important body of work through this submission to *Innovation and Science Australia's 2020 Strategic Plan Issues Paper* (‘the issues paper’).

We believe that, while the Australian Government is moving in the right direction to achieve a more innovative Australia, the innovation, science and research system needs to encompass skills development so that Australian organisations have workers who are agile enough to harness change, realise business innovation ambitions, and secure a return on investment in innovation.

These skills are not necessarily job or role-specific but instead are transferrable skills such as problem solving, critical analysis, communication and teamwork. We also need to consider new ways of formally assessing and benchmarking these capabilities, as well as developing a new framework for codifying the full range of existing and emerging credentials.

Setting the context – one glaring omission

Navitas commends the Australian Government and Innovation and Science Australia for the work so far in furthering understanding of how innovation and knowledge can underpin Australia's future prosperity, international competitiveness and high standards of living.

We agree with the key points made in the context section of the issues paper, particularly the statements regarding the need for ‘concerted, proactive and national action’ and the fact that government, business, educators and individuals need new approaches to realise our aspirations for a more innovative Australia.

Navitas supports the vision for Australia in 2030 articulated on page three of the issues paper, with one strong caveat.

We believe that the existing structure fails to reflect an important component: skills. Navitas believes, as do a number of other commentators,¹ that, for Australia's future growth and prosperity, the definition of Australia's innovation system must include the critical enabler of ‘skills’. Indeed, the United Nations Educational, Scientific and Cultural Organisation (UNESCO) has identified a range of knowledge factors² that hamper innovation; one of these is a lack of skilled personnel.³ It is essential, then, that education and skills be considered core to Australia's innovation ecosystem.

This expanded scope acknowledges the essential role skills development plays in innovation, human capital development and incremental productivity improvements. The ‘system’⁴ would therefore be known as the innovation, skills, science and research system. The vision would also be slightly amended to read, “We want an Australia counted within the top tier of innovation nations, known and respected for its excellence in *skills development*, science, research and commercialisation”. (As a crude measure of the centrality of skills to this agenda, the word ‘skills’ is mentioned 15 times in the issues paper, only two fewer than the number of times that the word ‘science’ appears.)

¹ Goedegeburre L, and Schubert R, *Vocational Education and the Innovation Agenda: Towards the Creation of Effective Eco-Systems* available at www.lhmartininstitute.edu.au/userfiles/files/Blog/voc-ed-in-the-innovation-agenda-LG%2BRS.pdf, p 10 and Fowler C, *What the National Innovation and Science Agenda (NISA) Didn't Say About Skills and Jobs* available at <https://www.ncver.edu.au/about/news-and-events/opinion-pieces/what-the-national-innovation-and-science-agenda-nisa-didnt-say-about-skills-and-jobs>

² UNESCO also identifies institutional, cost and market factors that hamper innovation.

³ <http://www.uis.unesco.org>, ‘Measuring innovation’, UNESCO Institute for Statistics, Training Workshop on Science, Technology and Innovation Indicators, 2009.

⁴ Description of the ‘innovation, science and research system’ at the top of page 3 of the issues paper.

The issue paper's summary of CSIRO's megatrends gives a good overview of the challenges and opportunities for Australia in dealing with the accelerating pace of change in technology, globalisation and demographics. The 'three horizons' framework from *The Alchemy of Growth* provides a useful model for conceptualising the 2030 Strategy. However, there is potential for us to 'get stuck' in a perpetual cycle in Horizon One, spending valuable time, focus and resources on 'improving the current system'. This would be at the expense of laying the foundations for the new systems, approaches and mindsets needed to achieve the ultimate transformation in the third horizon.

Challenge 1: Moving more firms, in more sectors, closer to the innovation frontier

Unsurprisingly, given Navitas is a global learning organisation with partnership at the core of what we do, a heavy focus of this submission is on the intersection of learning, skills, innovation and collaboration. To truly 'unleash gazelles' we need to get better at, and do more of, bringing people from diverse sectors, industries and skills together to devise user-driven solutions to problems – and we need to do this at scale.

Governments – collaborating with business, research agencies, community groups and learning and skills organisations – are in a unique position to play this facilitating role. One example of this in practice is the work undertaken by Austrade throughout 2015 to position international education in Australia for future growth. The 'conversation' that Austrade initiated included:

- **Town Hall-style meetings**
– over 800 participants nationally
- **Two forums with approximately 40 people at each**
– hosted by the Trade and Investment Minister in which groups as diverse as global tech companies, leading Australian universities, Australia's premier science and research agency, EdTech start-ups, investors, private education companies and Australia's national broadcaster came together
- **A series of intensive investigations into thematic areas**
– bringing together diverse groups for collaboration.

This new approach to government consultation resulted in a shifting of mindsets on the boundaries of international education for Australia, and therefore an expansion of the horizon for our third-largest export industry. If this approach were to be replicated across other industries, it could be powerful in unlocking other previously unimagined business opportunities and partnerships.

To 'move more firms, in more sectors, closer to the innovation frontier' Australia must also consider how best to leverage its acknowledged competitive advantages.

In 2014, both Deloitte and McKinsey released major pieces of work that looked at where global growth and Australian advantage intersect and highlighted the sectors that would drive our prosperity, today and tomorrow.⁵ Both reports identified education services, together with a number of other knowledge-based industries, as being areas of strong competitive advantage for Australia. Supporting innovation in these sectors will be key to creating the well-paying jobs of the future. One technology sector that has great potential for Australia is EdTech. This sector, a relatively untapped opportunity, combines our reputation for high-quality education and training with a tech industry with huge global growth potential.⁶

Navitas recommends that the Innovation and Science 2030 Strategic Plan include acknowledgement and targeted support for sectors, including international education and EdTech, where future demand and Australian advantage meet. This would build upon initiatives such as EduGrowth⁷ and the work by various state governments on the jobs of the future.⁸

⁵ <https://www2.deloitte.com/au/en/pages/building-lucky-country/articles/positioning-for-prosperity.html> and <http://www.mckinsey.com/australia-and-new-zealand/our-insights/compete-to-prosper-improving-australias-global-competitiveness>

⁶ TechCrunch, 'EdTech is the next fintech', available at <https://techcrunch.com/2016/08/13/edtech-is-the-next-fintech/>

⁷ <http://www.edugrowth.com.au/>

⁸ For example see the Victorian Government's Future Industries: <http://www.business.vic.gov.au/support-for-your-business/future-industries> and the New South Wales Government's Jobs for the Future agenda: <http://www.jobsforNSW.com.au/news-and-events/premier-releases-jobs-for-the-future>

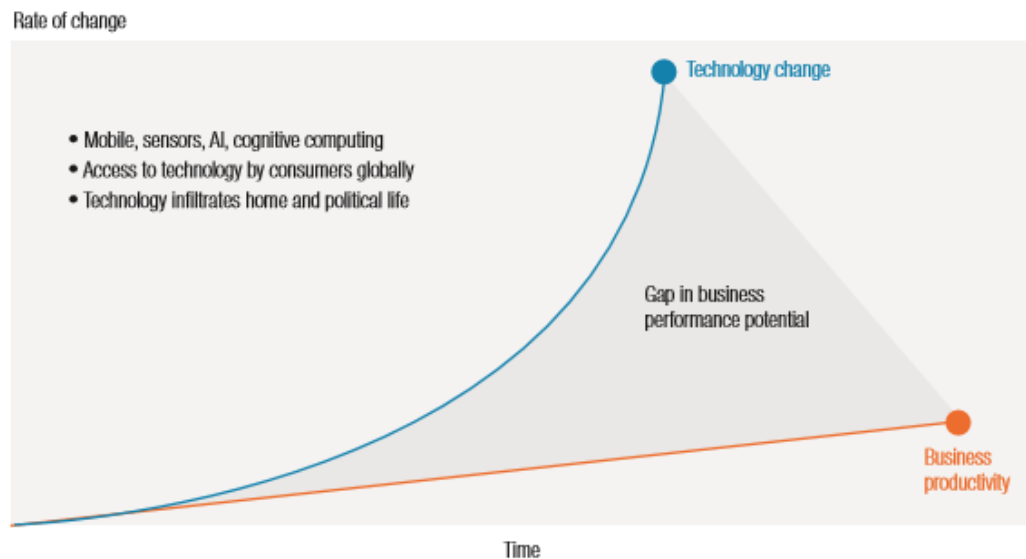
Challenge 2: Moving, and keeping, Government closer to the innovation frontier

It is important that we acknowledge the role of government in the innovation ecosystem. However, in response to, “What is your reaction to this challenge?”, Navitas suggests that governments (at all levels) still have a way to go on the journey to the innovation edge. The graphs below from Deloitte⁹ demonstrate the pace of technological change and the rate of change of different groups. As individuals, we readily adopt technology in all facets of our lives, and businesses are following, albeit at a slower pace. Public policy – including regulatory reform – is lagging far behind.

One of the key impediments to innovation within the public sector is its siloed and hierarchical nature. Governments and their agencies need to learn from other large, complex organisations whose employees are succeeding in changing organisational structures to be more networked, agile and client-focused.

Innovation happens when people with deep subject knowledge join others who have diverse skills and experience – regardless of their level within the organisation.¹⁰

WHAT APPEARS TO BE HAPPENING



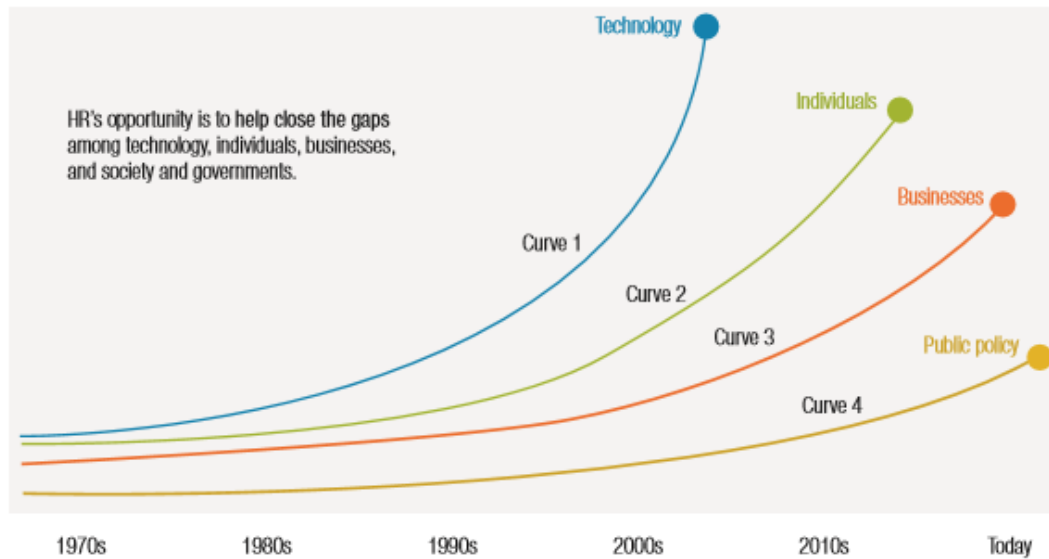
Source: Deloitte University Press | dupress.deloitte.com

⁹ *Rewriting the rules for the digital age*, 2017 Deloitte Global Human Capital Trends available at <https://documents.dupress.deloitte.com/HCTrends2017>, this representation courtesy of the forthcoming CEDA publication on productivity in the services sector.

¹⁰ <https://hbr.org/2013/11/hierarchy-is-overrated> and <https://hbr.org/2010/06/the-decision-driven-organization>

WHAT IS REALLY HAPPENING

Rate of change



Source: Deloitte University Press | dupress.deloitte.com

Another way governments and the public sector could move closer to the innovation frontier is through attracting, retaining and re-training existing staff in skills – namely, creativity, imagination and problem solving – that are as essential to contemporary policy making as they are to commercial innovation. Public policy deals with some of the biggest, most complex challenges of our age. For better public policy, we need people who are creative, and expansive enough in their thinking to imagine the future we hope to bring about and then have the problem-solving and analytical skills to suggest and test possible ways to reach optimal policy outcomes.

One final thought on how government could support innovation across business, research and the community; governments could move faster to make their data accessible. The government collects and holds a huge amount of data, the vast majority of which would provide invaluable insights to companies, community groups, learning institutions, research organisations, communities and other government agencies. Initiatives such as the Digital Transformation Agency at the Commonwealth level and New South Wales Government's Data Analytics Centre are a positive, but small start. The remit of these initiatives is to enable data sharing across agencies in each jurisdiction. However, we believe that to get the true benefit, we need public access to aggregated, de-identified and timely data across all available data sets. Accelerating the progress of this now would position Australia for great wins in innovation, productivity and quality of life by 2030.

Challenge 3: Delivering high-quality and relevant education and skills development for Australians throughout their lives

We strongly agree with the articulation of Challenge 3 of the issues paper. Delivering on this challenge is one of Australia's top national imperatives. An innovative, prosperous and equitable Australia relies on us being able to deliver skills and learning to the young, the old and everyone in between. To do this we must break out of the systems and mindsets that worked well last century to educate the masses. A recent post¹¹ on the Navitas Ventures blog by the Head of Digital Learning Futures, Maria Spies, provides an excellent insight into where innovation is occurring in education – it is at the edge of the system.

¹¹ <https://blog.navitasventures.com/reimagining-education-innovation-at-the-edge-3ace63223847>

To address this challenge fully, we must do two things simultaneously: innovate within the existing system; and look for and respond to wholesale changes to the system.

It is critical that we recognise the speed at which change is occurring and start to think differently about our incumbent education systems and funding models. In New Zealand, for example, a recent Productivity Commission inquiry looked at new models of tertiary education.¹² The review recommends a number of changes including to: enable self-accreditation for strong performers; make it easier for students to transfer between courses; abolish University Entrance (minimum requirements to be eligible to attend university); provide better careers' education for young people; make it easier for new providers to enter the system; and facilitate more and faster innovation by tertiary education providers. Likewise, during the US presidential election campaign, Hilary Clinton advocated for students to be able to access federal funding for 'boot camps' and coding schools.¹³

Project Landscape,¹⁴ an initiative of Navitas Ventures,¹⁵ shows the scale of systemic changes occurring and how even now education is being reimagined and reshaped. This body of work illustrates how technology is recasting the learning life cycle¹⁶ and highlights the thousands of companies already achieving results in this area. It also details how much is being invested currently in each 'stage' of this new life cycle. Right now, the total investment across the 5,000 identified companies is \$40 billion.¹⁷

To drive innovation, and nurture highly productive workers and informed contributors to society, Australia needs to address at least four key aspects of education and skills development.¹⁸

New capabilities

For Australia to achieve the ambition of being 'counted within the top tier of innovation nations' we must equip our people with capabilities for novel and adaptive thinking,¹⁹ as well as 'human' and transferrable skills such as empathy and negotiation.²⁰ A large body of work²¹ recently identified a set of essential 'enterprise skills' that are not only highly sought-after, but also, attract a pay premium.²² These skills are not role- or industry-specific; instead, they are enduring capabilities such as problem solving, financial literacy, digital literacy, teamwork, communication, intercultural skills, creativity, critical thinking and presentation skills.²³

A focus on digital skills would also build Australia's innovation capabilities. These skills go beyond knowing how to use particular applications or tools to encompass what the World Economic Forum (WEF) has referred to as digital intelligence. Digital intelligence or 'DQ' is the set of social, emotional and cognitive abilities that enable individuals to face the challenges, and adapt to the demands, of digital life'.²⁴

New mindsets

Cultivating an 'innovation mindset' is also important in unlocking Australia's latent innovation potential. Such a mindset is characterised by adaptability, resilience and acceptance of fluidity as the norm.²⁵ These traits are essential as our societies and workforces adapt to fast-paced change that will see, among other things, episodic learning, with traditional education models replaced by continuous learning driven by a constant need for new knowledge and skills.

¹² <http://www.productivity.govt.nz/inquiry-content/2683?stage=4>

¹³ http://www.bizjournals.com/denver/blog/boosters_bits/2016/06/hillary-clinton-touts-entrepreneurship-tech.html

¹⁴ <https://blog.navitasventures.com/global-edtech-landscape-2-0-e9fdcfbd0b52>

¹⁵ <https://www.navitasventures.com/>

¹⁶ The eight emerging stages of the new learning life cycle are: create; manage; discover; connect; experience; learn; credential; and advance see: <https://blog.navitasventures.com/global-edtech-landscape-2-0-e9fdcfbd0b52>

¹⁷ <https://blog.navitasventures.com/global-edtech-landscape-2-0-e9fdcfbd0b52>

¹⁸ The key themes in this section reflect ideas and views in a chapter written by Navitas staff in the upcoming Committee for Economic Development Australia publication *Improving service sector productivity: the economic imperative*, to be released in June 2017, and will be available at <http://www.ceda.com.au/research-and-policy/research/2017/service-sector-productivity>.

¹⁹ *Future Work Skills 2020*, Institute for the Future for the University of Phoenix Research Institute.

²⁰ Hugh Bradlow, 'The impact of emerging technologies in the workforce of the future', *Australia's future workforce?* Committee for Economic Development Australia available at <http://www.ceda.com.au/research-and-policy/policy-priorities/workforce>.

²¹ *The New Basics: Big data reveals the skills young people need for the New Work Order*, Foundation for Young Australians

²² *The New Basics: Big data reveals the skills young people need for the New Work Order*, Foundation for Young Australians

²³ The Business Council of Australia also recently produced a similar set of 'work-ready' skills employers seek beyond a formal qualification. *Being Work Ready: A Guide to What Employers Want*, Business Council of Australia, May 2016

²⁴ *Eight digital skills we must teach our children*, World Economic Forum, June 2016

²⁵ *Tomorrow's Digitally Enabled Workforce*, CSIRO, January 2016

As work practices such peer-to-peer and the 'gig' economy change the nature of work, we must adapt our thinking as a country on what constitutes a full-time job. We are seeing diverse approaches to work where many people, particularly younger people, are choosing to work as a salaried employee for a couple of days a week, collaborate with others in start-up businesses another couple of days and undertake learning or engage in community activities for the rest of their productive time. This emerging approach to how we use our productive time holds great opportunities for enabling new and innovative enterprises and start-ups.

New competency assessments

In order to be able to set benchmarks and identify effective practice in how these new capabilities and mindset are imparted, we need to develop mechanisms for them to be measured and assessed. A recent Mitchell Institute report highlights the importance of measures that not only capture broader cognitive, social and emotional dimensions of a learner's development, but also track and measure these in a consistent manner at a national level.²⁶ To compete in the global innovation market, Australia must consider developing new, pragmatic frameworks to accurately assess competency with a view that extends beyond one-off pass-or-fail, narrow academic performances to life-long learning and improvement.²⁷

New frameworks

Credentialing in a fast-paced digital world requires a qualifications framework that is a catalyst for innovation. Australia has an opportunity to lead the world in developing a 21st century credentials framework. This new framework could use Australia's highly regarded Australian Qualifications Framework (AQF) as a foundation and augment it with new and emerging programs that have traditionally been categorised as 'non-accredited' learning. New programs include Massive Open Online Courses (MOOCs), 'boot camps' and industry-accredited training. Programs such as these are now being recognised through mechanisms such as 'micro-credentials' or digital badges; however, there is no universal system of recognition.²⁸

A new more flexible framework would encourage and support learning and credentialing innovation. It would also facilitate new approaches to industry needs identification, content development (both technical and enterprise skills), delivery and assessment. It would support credentialing that is responsive to the pace of change and just-in-time needs of the future economy. A new framework would also be more reflective of the ongoing, life-long learning that will characterise education in the years ahead.

Now is a timely opportunity to examine this issue, with the Australian Government announcing a review of the AQF as part of the 2017 higher education budget measures. The scope of the review would need to be expanded as it currently focuses only on 'changes required to more clearly link matriculation standards from senior school to entry standards in higher education and the preparation required for successful completion of higher education courses'.²⁹

Challenge 4: Maximising the engagement of our world-class research system with end users

Navitas agrees that there are huge potential benefits in facilitating collaboration between knowledge creators and those applying that knowledge. The essence of innovation is solving the problems that society or users have, so there is real benefit in bringing researchers and those experiencing the problems closer together. Benefits include faster iteration loops and the ability to prototype solutions in real-life situations.

One tangible way in which Australia could increase the engagement across research and industry is through embedding capability development in the 'new mindsets' we noted above – adaptability, resilience and openness to fluidity – into our research training. Another is consideration to training

²⁶ www.mitchellinstitute.org.au/wp-content/uploads/2017/03/Preparing-young-people-for-the-future-of-work.pdf, The Mitchell Institute, March 2017. Page 8.

²⁷ *A pragmatic guide to competency: Tools, Frameworks and Assessment*, BCS – The Chartered Institute for IT, 2011

²⁸ <https://www.deakin.digital.com/articles/better-21c-credentials-from-deakin-universitys-professor-beverley-oliver>

²⁹ https://docs.education.gov.au/system/files/doc/other/ed17-0138_-_he_-_glossy_budget_report_acc.pdf

in approaches informed by design thinking.³⁰ Design thinking is a ‘human-centred approach to innovation’.³¹ It brings together groups of people from diverse backgrounds, with different skills and experience, to apply new thinking and prototype new approaches to challenges or opportunities.

To produce more innovative and agile research graduates, Australia’s research training system should continue to embed training in the enterprise skills and key capabilities highlighted in the previous section. We would therefore be producing highly sought-after graduates who have deep discipline knowledge coupled with broadly applicable competencies such as communication, teamwork, global understanding and open-mindedness.³²

Challenge 5: Maximising advantage from international knowledge, talent and capital

At Navitas, we wholly support the intent to ‘maximise advantage from international knowledge, talent and capital’. Note that we believe ‘the system’ should include skills – which means we would refer to the ‘innovation, skills, science and research system’. We agree that a highly innovative Australia by 2030 would have:

- ‘Enhanced our global engagement’
- ‘Positioned Australia as a great place to study, work, live and invest’
- ‘Built on our strengths and addressed capability gaps through international engagement’
- Played ‘a leading role in international knowledge sharing’.

It is vital for Australia’s innovation ecosystem that we nurture and grow talent domestically, as well as attract and retain international talent. A robust and future-focused skilled migration program is integral to achieving this objective. Australia’s many advantages already make it an attractive destination for globally mobile talent. We have a great opportunity to capitalise on these advantages and – like countries such as Canada³³ and France³⁴ – we can be open to scientists, researchers, engineers and entrepreneurs joining our businesses, institutions and communities.

Australia’s innovation system would be strengthened by a less retrospective approach to the skills and job roles that are on the list of occupations that are eligible for skilled migration.

In an age when the job titles of in-demand positions for even five years’ time don’t yet exist,³⁵ we must take a more inclusionary approach. There is evidence today of Australia’s innovation ecosystem losing out to other countries in terms of high-tech talent needed to drive the start-up community. The chief executive of start-up advocate TechSydney, Dean McEvoy, commented recently it was “...an ongoing frustration... that skills and experience required by high-growth start-ups were not on the list, and not recognised in this country”.³⁶

The ongoing support of Australia’s international education sector by government is also critical. It ensures Australia’s education and training institutions are enriched while a student studies here and helps to guarantee that Australia has ready access to a highly skilled international talent pool. Encouragingly, there is strong evidence of support for our top services export from governments at all levels and of both political persuasions. However, governments must be ever mindful of the potentially damaging, and usually unintended, consequences of changes in policy, particularly with student visa policy settings and other related immigration policies.

There is also an opportunity for all interested parties to come together to educate the community on the benefits of attracting international students and temporary and longer-term skilled migrants and residents. Australia’s learning and research institutions, our businesses and communities are enhanced, as is our economy, through export revenue generation, increased tourism and tax income.

³⁰ Ideo is widely acknowledged as one of the world’s leading design thinking organisations. See their website at

<https://www.ideo.com/pages/design-thinking>

³¹ <https://www.ideo.com/pages/design-thinking>

³² For more on ‘T-Shaped’ skills see <http://www.ceri.msu.edu/wp-content/uploads/2010/07/TshapedProfImage.pdf> and <https://agileleanlife.com/t-shaped-skills-every-area-life/>

³³ <http://www.cbc.ca/news/politics/ahmed-hussen-immigration-hussen-1.3966724> and <http://www.independent.co.uk/news/world/americas/donald-trump-justin-trudeau-canada-immigration-ban-muslim-countries-a7552186.html>

³⁴ <https://www.businessinsider.com.au/emmanuel-macron-american-climate-scientists-france-2017-5?r=US&IR=T>

³⁵ <https://www.monster.com/career-advice/article/cool-future-jobs>

³⁶ http://www.innovationaus.com/2017/05/Tweaks-in-play-on-457s-RD-tax/?utm_medium=email&utm_campaign=Newsletter%20127%20May%2025%202017&utm_content=Newsletter%20127%20May%2025%202017+CID_126de1f99361ae548969f88e94d1ec75&utm_source=Email%20marketing%20software&utm_term=Tweaks%20in%20play%20on%20457s%20RD%20tax

Challenge 6: Bold, high-impact initiatives

Navitas believes that one bold, high-impact undertaking would be to re-shape Australia's whole education and training ecosystem – across the entire learning life cycle – to incorporate the new capabilities, mindsets, competency assessments and frameworks outlined in Challenge 3. This would embed the skills and attributes needed for Australia to be a truly innovative country by 2030.

Conclusion

The Australian Government and related agencies are on the right track to generate innovation across all sectors of Australian business. With sufficient skills training, a considered framework to capture and measure new learning, encouragement of foreign high-value workers, and, most importantly, a long-term outlook, we can support our innovators to generate game-changing initiatives that will have lasting impacts.

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