
Submission to the National Innovation System Review

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Authors:

Professor Lelia Green, Associate Dean, Research and Higher Degrees, Faculty of Education and Arts

Professor Brenda Cherednichenko, Executive Dean, Faculty of Education and Arts

Professor Peggy Brock, Professor of Colonial and Indigenous History, Faculty of Education and Arts

Organisation: Edith Cowan University

Type of organisation: University

Address: 2 Bradford Street, Mt Lawley WA 6050

Email and phone contact B.Cherednichenko@ecu.edu.au (08) 9370 6459

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Recommendations

1. We should harness HASS (Humanities, Arts and Social Sciences) to the innovation engine to speed up response and engagement;
2. Cross-discipline teams that include HASS perspectives have the potential to engage publics at the earliest point;
3. We should use cross-disciplinary and arts/education-based think tanks to contribute via open ended brainstorming to growing and harnessing passionate perspectives on innovation issues;
4. Australia should appoint a Chief Arts Innovator;
5. Solely championing pragmatic work reduces innovation: we need spaces through which new concepts and perspectives can be explored;
6. Australia should innovate across the East/West divide, and celebrate and incorporate insights from diversity;
7. We need a national commitment to engage with, educate and inspire all Australians, life-long;
8. Encourage the development of a can-do culture, which includes can-do differently/better/odd-ball;
9. Complexity has to be embraced and valued: not shepherded into conformity
10. Institute an Australian Mandela-style Council of multi-generations.

The process and the questions

As an Education and Arts response, this submission seeks to identify gaps which may not be so clear to respondents operating from a science and technology perspective. It acknowledges a range of ways of knowing something in addition to a science/technology approach, and a variety of intelligences. Whilst the Review's questions have proved to be a productive and stimulating conduit to debate they can be indicative of constraints upon innovation.

Engagement

Many challenges currently prompting Australia to innovate – such as climate change – need no further scientific proof. The next stage of innovation and adoption entails the recruitment of the broader Australian public, including the disengaged and disadvantaged. This is an education/arts project, indeed a HASS (humanities, arts and social sciences) issue. **We should harness HASS to the innovation engine to speed up response and engagement.**

Cross-disciplinary research

Australia has a real opportunity to maximise its contribution to the global innovation debate via addressing the issues raised in cross-disciplinary research. Arguably, the critical contribution made by Australian of the Year 2007, Tim Flannery, lay in the manner in which his arts and science training comes together to enable him to communicate clearly on climate change. **Cross-discipline teams that include HASS perspectives have the potential to engage publics at the earliest point.**

Implied restrictions constitute a straight-jacket

The prompt questions include ‘As a relatively small country, how does Australia prioritise ...?’ Yet Australians do not say: ‘As a relatively small country we can only embrace one code of football’. As a nation we go where the passion is; into multiple sites. For the same reason, we should value ‘talents’ as well as ‘skills’. **We should use cross-disciplinary and arts/education-based think tanks to contribute via open ended brainstorming to growing and harnessing passionate perspectives on innovation issues.**

The Chief Scientist

The Chief Scientist has made a welcome contribution looking at the impacts of policy and practice upon the sciences; but there is an even more exciting opportunity for a Chief Arts Innovator. Enhancing the role of Arts and Education will assist in overcoming an arts-science divide and building hybrid approaches. **Australia should appoint a Chief Arts Innovator.**

Outcomes orientation and the pragmatic approach

In addition to outcomes orientations and a pragmatic approach, spaces should be opened for supporting open-ended and playful innovative enquiry – recapturing the mechanisms through which we learned about the world as children. **Solely championing pragmatic work reduces innovation: we need spaces through which new concepts and perspectives can be explored.**

Australia’s place in the world

As a migrant nation, with a hybrid geography incorporating many European antecedents and with a home in Asia; **Australia should innovate across the East/West divide and celebrate and incorporate insights from diversity.**

Innovating in the everyday

Educators specialise in facilitating widespread embracing of change. Although this usually takes place in formal settings and with younger age groups, life long learning and a positive, holistic response to new challenges is a matter of engaging with hearts as well as minds. **We need a national commitment to engage with, educate and inspire all Australians, life-long.**

A can-do culture

Australians embrace an internal contradiction: can-do in extremis, but avoiding tall poppy syndrome in the everyday. Resolving these blocks requires repurposing. At the same time, much that is excellent in retrospect was weird or odd-ball at the time: we should work to make eccentricity acceptable. **A can-do culture includes can-do differently/better/odd-ball.**

Complexity is a positive

Cross-disciplinarity, the integration of HASS perspectives, the welcoming of difference and diversity seem chaotic and complex as a range of recommendations. Nonetheless, **complexity has to be embraced and valued: not shepherded into conformity.**

Beat short-term thinking

Institute an Australian Mandela-style Council of multi-generations.

Detailed Response:

This submission is structured to address the prompt questions (red) and expansions (italics) offered for consideration by the expert panel.

“Can we imagine a better world? Are we asking the right questions?”

This question focuses our attention on the generation of novel and fresh ideas. Producing new knowledge and approaches involves pushing boundaries, and questioning the status quo.

The conventional debate is dominated by scientists and technologists and fails to produce new knowledge in generally available forms. The issue is one of discrimination and dissemination. A better world – rather than more of the same – involves the discernment of relevant innovation and then the recruitment of involvement by new groups of citizens unused to participating in these debates. Creative artists, educators, and learning and teaching specialists need to get involved.

There needs to be an acknowledgement that there are other ways of knowing. New knowledge and innovation doesn't just manifest in one particular form such as science/technology. For example, at ECU creative writers are working with Alzheimers patients to retain and recover memory. Moreover, in addition to multiple intelligences and a range of ways of knowing, is a further layer of innovative potential with hybrid approaches and transdisciplinarity. Multi- and cross-disciplinary study is talked about, but not directly facilitated with the shining exception of higher degrees in the Creative and Performing Arts; for example Sarah Jane Pell's Artist-in-Residency at NASA. The assessment of multi-disciplinary research is generally acknowledged as a weakness and a problematic, without this being identified as a priority (see endnote). Classical divisions – for example, between ARC and NHMRC – stand in the way of innovative ways to consider (say) developing and trialling appropriate behavioural and societal responses to new and existing challenges such as avian flu, climate change, salinity and water.

While established think tanks are deemed to provide a useful role, they are almost exclusively science, engineering, technology and business focussed. They should not all be commercially driven. There should be opportunities for non-traditional think tanks that allow full brain-storming, without shutting down options on grounds of realism, or commercial realities. Recognising that the Council for the Humanities, Arts and Social Sciences has been successful in rewriting some of the older agendas, there is still the opportunity for more collaboration across sectors. For example, this could involve setting up systems to combine 'opposites' in a way that does not entail people closing down arguments on the grounds of an opposing challenge as is modelled in the SymbioticA project in Perth.

Traditionally, arts challenge the sciences; sciences challenge the arts without considering hybrids. Given the welcome role of a Chief Scientist, why not institute a role of Chief Arts Innovator – someone who is appointed to look at new policy and legislation with the responsibility to question the impact of these for the arts, innovation and creativity agendas? Such a role would have credibility at the top level and would also be required to source questions from the wider community. Which

begs a further question: How can Australia build the bridges to move beyond the stereotypical divide of the sciences and the arts; without first increasing the role, responsibility and status of the arts and education communities?

A further challenge to the status quo might be mounted by asking about the views of people excluded from general economic and knowledge resources distribution. Seeking to (re-)engage the disengaged will lead to new perspectives and participants. Learning why these people disengage and exploring re-engagement strategies will help the production, dissemination and widespread adoption of fresh ideas and questions with a hope of developing a more inclusive, just and better world.

“How do we solve the big challenges we face as a country, an industry or as a community?”

Outcome oriented research and inquiry is the only response to the big challenges confronting us as Australians and global citizens. How do we do this better? How do we increase business investment in innovation?

Might this be an example of a wrong question ... or a wrong prompt for the question? ‘Outcome oriented research’ is arguably focussed on returns over too short a timeframe. Pragmatic research is more of the same: it militates against innovation. Outcome oriented research is not the only way and arguably should not entail the giving up of enquiry for its own sake. Alongside such outcomes oriented research there should be room for experimentation, and a different frame of reference, for example the contribution made by Rod Giblett to interrogating and publicising the cultural drivers of wetland degradation. The current agenda and criteria for ‘outcomes’, ‘challenges’ and the ‘increase of business investment in innovation’ is grounded in economic rationalism and unlikely to produce vividly new perspectives. Arts and education research may deliver long term benefits of a different order: outcomes according to different criteria. Creative work, for example, is carried out in practice as well as visible in outcomes, and has a concrete presence in the real world while also permitting softer, subtle changes in direction by engaging various national populations, differently.

Given the reference to Australians as global citizens, what about the world? What about the divide within Australia of the east sea-board and the west sea-board; and the divide represented by Australia of the West being in the East? This is quite apart from an engagement with Indigenous perspectives, where ECU’s Kurongkurl Katitjin researchers have dramatically improved education participation rates for some groups of Indigenous children. There should be a conscious commitment to maximise the opportunities that divergent perspectives bring, and ask for people’s ideas (as with this submission). It is time to challenge the notion of identifying what the “big challenges” are, and likely candidates to solve these. Instead, that question should be begged and a diverse range of people invited to explore the issues.

“Could we do everyday things better?”

This question focuses our attention on creative problem solving; everywhere, by anyone. How can we continually increase value? This question invites us to build on our national ‘can do’ culture.

The first issue is ‘do we increase value’ in matters such as sustainability; less rubbish, engaging the national ‘can-do’ culture. The answer is yes – but only by engaging more people and perspectives, including what might be termed ‘the poetic soul’. Creative problem solving, which is inclusive, is also motivating and engaging and this will require new and different strategies to communicate with hearts as well as minds, and educate and inspire an enquiring citizenry. There is a national agenda around *who* recognises *what* is *valued*. The prompt question is replete in ‘big’ science/technology thinking. The assumption communicated is a shared ‘everyday’, and an implication that big challenges are not everyday things. Yet, arguably, the big challenges are best addressed via changes in daily life, such as those prompted by media products like Al Gore’s *An Inconvenient Truth*. This is why educators, humanities specialists, artists and social scientists are so critical to the discussions.

When discussions turn to creative problem-solving they beg the question: What point is there in becoming a learning nation if we just dig things up and send them overseas? How does our culture and our nation show that it values creativity, or problem-solving – or creative problem solving? Problem solving may be a ‘graduate attribute’ for certain graduates in certain universities, but how can it be embedded throughout the education system and integrated in everyday life? A cogent answer requires a re-examination of the economic rationalist model. It cannot be that the solution that provides the biggest profit is always and necessarily the best one: instead it may be that the solution, which engages most people for the most time is better than one that is ‘profitable’. Maybe the focus on skills needs to be augmented by a focus on talents?

The challenge is to move beyond the learning organisation and become instead a learning community and a learning nation, with the capacity to embrace change and handle alternative value systems. For example, who says we have a can-do culture? Teachers in some schools know that the students who identify themselves as ‘can-doers’ make their life more difficult. Innovative and different approaches are required to empower people to embrace a can-do culture. (For some this is as counter-productive as signing up for can-do-more; whereas as a society we could be promoting ‘can-do-better’ or ‘can-do-differently’.)

“How do we get more firms and organisations to use the best available tools and techniques, from anywhere around the world, in what they do?”

This is about putting innovation to work. It addresses the diffusion of knowledge and techniques across whole industries and communities. Do we have the skills and training to take up this innovation challenge?

Again, these issues – the “diffusion of knowledge and techniques across whole industries and communities” – relate to the arts and education. They also relate to longer timelines and to playfulness. *Rove Live* and *The Chasers’ War on Everything* make important practical and political comments through play, and make these palatable. Collaborative play could be the dominant model for building human creativity and flexibility, rather than a focus on economic rationalism and “outcomes oriented research and inquiry”. The ingenuity of the ways through which many people avoid responding to a challenge is staggering. Much energy is expended in minimising challenges, or constructing challenges so that they are presented only on certain specific terms (such as ‘a research and development challenge’). Australian

society makes it difficult for those who want to do things differently and excel. Or, maybe, do things differently and not excel – but instead have the satisfaction of creating an alternative. The focus is on ‘passive creativity’; that is to say, a creativity that is creative within conventional boundaries or to achieve conventional ends is not true creativity. This passivity is a problem, along with the acceptance of the status quo. There is no celebration of difference, of eccentricity, of the unusual or the odd-beat. How would Australia be different if thinkers, creatives, ‘differents’ were given the space and attention currently reserved for sports stars? What if a really different idea, perspective, whim, were to become front page news? How would that change attitudes to creativity and innovation?

Even in the quintessentially creative arena of the performing arts, the best performing artists are not valuing risk-taking and are not rewarded for innovating outside the norm. ECU’s Adjunct Professor and performance artist Stelarc remains a marginalised and controversial figure in Australia, although internationally celebrated. Those individuals or groups who maintain and perpetuate the norm are rewarded (even though they call themselves innovators and see themselves as initiating new ways of doing things). True innovation entails space to explore plus room to fail. The idea of a national innovation system seems to suggest a constant movement forward in a linear direction, not allowing travel at a tangent: yet human experience is that innovation results concurrently with dead ends and cul de sacs. Our nation and our culture are positioned in terms of an isolated island – necessarily, many new perspectives will be learned from other people: new to Australia, or outside Australia. Connections and community are both important here.

The review of the National Innovation System assumes an end point of success without necessarily accepting that participants need failure and the chance to learn from the unexpected. The “best available tools” need unearthing. If they’re currently available, they’re not an innovation. They need to be forged through engagement with unexpected others across disciplines and perspectives. They need to be considered against a long term agenda, not a short term horizon, since this homogenises perspectives, approaches and outcomes and validates pragmatic – rather than exploratory – approaches. As well as delivering skills development, a national innovation system requires the creation of room to explore talents, and training.

“How do we make it easy for people to use tools or apply ideas in novel ways?”

This involves expanding on the work of others, so people need the freedoms to use and adapt other people’s tools or ideas. What are the barriers to adaptation and novel applications?

Following on from the focus on the “best available tools”, the first barrier to innovation is the notion of a best tool, rather than encouraging the use of a wide variety of tools from which a counter-intuitive best – or range of bests-for-different-purposes – can emerge. Structures and timetables for the use and adaptation of others’ ideas militate against diversity. Ideally, complexity has to be embraced and valued: not shepherded into conformity. Innovation is unlikely to entail simple answers, or simple adoption strategies, or simple techniques for disarming the status quo. Ideas become conflated with rationales and with the rational. Some of the best ideas might not be rational, but emotional and intuitive. How can these be valued, embraced and championed? How can they make the front page? Could copyright and patenting be

made more flexible to help adoption? Play and exploration are only possible as part of a long term engagement. People need ownership of the process which is why an increasing number of mid-career and senior artists are enrolling in rigorous practice-led doctoral programs. They have to be intrigued and challenged to get involved and to experiment.

In the wider public domain, Open Source programming and Wikipedia are models of informal, yet rigorous and networked collaboration; they work on systems of social acclaim and recognition, and the celebration of expertise. How can this be built into everyday life in other domains?

“How do we educate and equip our people to be creative and innovative, life-long?”

This is about how we, as a country, build and nurture human and social capital. It is about building skills.

Can we substitute ‘building talents’ for ‘building skills’? How different would engagement with a variety of stakeholders be if one of the missions of education was to identify talent, rather than a training agenda; the communication of knowledge, and the development of skills? The re-funding of tertiary institutions, according to an agenda of growth and innovation; and of stipendiary students to allow them to explore what they are learning; would be one way forward. Such an approach would be an alternative to needs-driven education that focuses largely or solely on the next assessment point. Education could be structured alternatively to value ideas, imagination and different ways of doing things. This would mean that courses would not be deleted on a 2-3 year cycle according to current popularity. The students choosing to study a minority course at a not-obvious university could be celebrated for thinking outside the box and eschewing the formulaic.

Education could be re-jigged to favour a problem-solving approach to the acquisition of generic skills in terms of an innovation and creativity agenda in a way exemplified by some leading medical schools including that at Flinders University. Life-long creativity would involve ongoing engagement and continuous relevant education and talent development. Problem solving includes factual knowledge, plus understanding, but it has analysis on top of this. People need to move beyond passive learning.

Innovation does not fit within a conventional political cycle. There is a lack of vision concerning what could be possible; and what is aimed for. Arguably, this is another manifestation of cultural cringe: other countries achieve goals by investing in think tanks at universities – but it is as if there is no need for Australia to try this since it cannot become better than the USA does it at MIT, or at Stanford. What would Australian think tanks come up with? What would an Australian think tank at ECU come up with that would be different from a think tank at ANU? Think tanks are usually given time to explore thinking – it’s not a biennial/triennial treadmill. True innovation and experimentation would suggest a restructure of existing finance models to look beyond/outside the business—science—technology triumvirate. Arts and education could help determine how innovation-players become better partners and collaborators – with rigour, fire, enthusiasm and energy such as the move in ECU student projects from computer gaming environments to helping solve problems with accessing underground resources using 3D imaging.

“As a relatively small country, how does Australia prioritise its innovation efforts to make the most of what it has or can do?”

None of us can do everything; so how do we decide on what we should concentrate on? How do we balance our priorities across the claims of industry, research, and the community.

The issue is: what we can make Australians passionate about? Australians don't say “Australia is a small country, it can only support one code of football”. It is equally inappropriate to prioritise research strengths until we know where the passion, energy and innovation are. Passion is about engagement: and this uses Humanities, the Arts and the Social Sciences. How can the passion for sports be adapted and applied to other areas? Is it solely a matter of money? What would happen if sports funding were matched with equivalent donations to the arts and creativity? Any prioritisation involves running dangerous risks that the trajectory will end in conformity; and not in innovation. Once free-form research dies, people are focussed on re-inventing the same wheels and not looking beyond that circle. The status of innovators might help: the celebration of interesting ideas for their own sake even if they do not always bear fruit. Much innovation is not appreciated: instead it is challenged and criticised, before its value can be explored. The allowable timeframe is often an impediment, and any commitment to concentrate on priorities implies a short timeframe. The model is one of scarcity: scarcity of time, of funding, of ideas. Have we notions about how fertile a creative innovation system might be? What would be different if we looked at innovation through the same lenses as developments in medicine? A long maturation is accepted, and the development of the process is supported with more resources becoming available as answers remain elusive. In comparison, innovation horizons are short term outcomes.

“What mechanisms could we put in place to support a culture that promotes the generation of fresh ideas and risk-taking?”

One positive way forward might be to delete the idea of a national innovation ‘system’. Systems imply the systematic, whereas innovative research is supposed to be ground-breaking and challenging. Managing innovation should lead to risk-taking. We can train and support; and provide incentives and rewards; for people who take risks, but systems tend to lead to ossification and to conservatism. Fields of enquiry mean that investigators create data according to the specifications of different fields. Leaving innovation open and free-form offers more potential.

It is currently not popular to be clever, brainy, intelligent. A child would have an easier time and more social success being a sportsperson than a risk-taking, idea-monger. These perspectives are challenged by ECU Education projects with young gifted and talented mathematicians. Maybe we also need to find ways to celebrate informal and non-formal (even dissident) learning – such as LAN groups, gamers, fanfiction writers, musicians. Examples include ECU's Cybertournament, where school-based teams of gamers competed for gaming honours.

Where the husbandry of economics or time is a rationale for prioritisation between alternatives or a preferred outcome, this will militate against the generation of fresh ideas or risk-taking. Notwithstanding the old ‘creative’ adage in Advertising – give the freedom of a tight brief – if the freshness of the idea is the imperative then it only mixes and compromises the message to make time or money the driver. Ideas and

imagination emerge and work differently where alternatives and diversity are explicitly sought. Challenges to cultural values, plus education, equate to an open-ness to fresh ideas. Most fresh ideas involve a challenge to the status quo and some include the risk of rejection. This implies that people require opportunities to take risks without being punished when innovations turn out to be ‘unsuccessful’, or slow to deliver success.

Recognition of visionary, creative leadership has few exemplars in Australia, but one might be recognition of Tim Flannery. Although Flannery is an academic and a scientist – and might not have otherwise been nominated as Australian of the Year 2007 – he is also a best selling writer and it is arguably his grounding in *Beowulf* and his first degree in Literature that made him the consummate communicator, which enables him to engage Australians on a thirty-year journey to result in the current discussions of climate change. That storytelling coupled with science is more powerful than either talent alone, yet the financial and administrative barriers to multi-disciplinary work remain formidable and there is no equivalence in the valuing of different forms of knowledge: no holistic recognition of the importance of passion and energy to innovation. This is a return to the argument for a Chief Arts Innovator, alongside the Chief Scientist, and for equivalence in government policy making of humanities education and the creative arts alongside science, technology and engineering.

There is a need for seeding leadership in the grain of society itself, rather than centring this in government. The timeframe of government is just too short to be useful for big questions and real creativity, and innovation beyond a time-and-money agenda. There needs to be space and funding for risk: fear of failure and fear of success are twin problems in Australian society. Different – non-government – rhythms need to be harnessed. Maybe it is time to reinvent an innovation from ancient wisdom with a Mandela-style council of elders that does away with even this new ‘tradition’ by including members from across the generations?

Note regarding Cross-discipline research

It is at the boundaries of disciplines that major advances are frequently made (2005, p. 1)... Such [cross-disciplinary] work is typically innovative and may be able to reach larger and more diverse audiences than some more narrowly-focused research, increasing its potential impact ... [But] assessing cross-disciplinary work is difficult because of (among other things): Differences in language and methodologies across disciplines; The institutional constraints imposed by discipline-based structures; and Cognitive constraints (the difficulty of finding experts in two very different fields). Clearly the assessment of proposals in non-cognate, or very different, disciplines, such as science and art, is inherently more difficult than the assessment of proposals in cognate disciplines, such as philosophy and ethics (bioethics). (2005, p.8) [RQF]

EAG (Expert Advisory Group) Working Group Paper: Mechanisms of Assessment – Panels/Cross-disciplinary research <http://www.dest.gov.au/NR/rdonlyres/F6368EE8-6F45-4286-94C9-6C4A3011526A/7864/MechanismsofAssessmentPaper1.pdf>

(see also

http://209.85.173.104/search?q=cache:Dxv91o4UiA8J:www.arc.gov.au/rtf/ARC_resp_onse_to_PREFERRED_Model_051005.rtf+cross+discipline+%22EAG%22&hl=en&ct=clnk&cd=5&gl=au)