

## Designing a National Innovation System to allow the Creative Industries to add value

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### Abstract

Acknowledging and celebrating new energy around critiques of Australia's National Innovation System, this paper explores the design of an innovation system that would harness energy from the Creative Industries. The notion that the Creative Industries are an important element of Australia's innovation system has not, it seems, been self-evident. Indeed, while the Department of Innovation, Industry, Science and Research (DIISR) identifies four areas under 'Specific industries and sectors for Innovation', these areas are Biotechnology, Information and Communications Technologies (ICT), Nanotechnology and Pharmaceuticals. The entries under the 'Programs and services for Innovation' are likewise Creative Industries-free (although comparatively heavy on Science, Technology and Pharmaceuticals), while the pointers to 'Consultative forums for Innovation' exclude, for example, the ARC Centre of Excellence for Creative Industries and Innovation (CCII). A majority of the sites and resources referred to, however, reflect the priorities of the Howard Government and address initiatives from that era.

Things are changing. It is clear that today's Australian Government is prepared to accept that a revised National Innovation System may usefully draw upon the work carried out during the past decade concerning the nature and contribution of the Creative Industries. Work relating the Creative Industries to Innovation has been in two directions: firstly critiquing and exploring the development of the Creative Industries as a driver for innovation and, secondly, detailing the shortcomings of a National Innovation System that excludes Creative Industries as one of the major loci of activity. Assuming that a National Innovation System can be designed better – as the DIISR review appears to imply – how can it be designed to allow the Creative Industries to add value?

### Designing a National Innovation System to allow the Creative Industries to add value

When an innovation is identified as such, and recognised as ground-breaking, the path leading to that innovation can appear deceptively to be linear. Given an outcome, the ways of arriving at that outcome are identifiable retrospectively. Outlining his theory of the paradigm shift, Thomas Kuhn comments that the image of science is drawn "mainly from the study of finished scientific achievements [...] a concept of science drawn from them is no more likely to fit the enterprise that produced them than an image of a national culture drawn from a tourist brochure" (Kuhn 1996, p. 1). Arguably the scientific method – the dispassionate collection of data, coupled with observation and theorisation leading to acknowledged theories and laws, tested over time – appears to be an efficient and time-honoured way to arrive at the best possible solution for a complex series of questions. Yet Kuhn comments that the ground-breaking discoveries in science occur only after repeated flaws are evident in the scientific status quo; when scientists "can no longer evade anomalies that subvert the existing tradition of scientific practice". Kuhn notes that such anomalies require scientists ultimately to embark on a "shift of professional commitments" (Kuhn 1996, p. 6) and become committed to a new paradigm, having

rejected the old. He also notes that science itself – not viewed in retrospect – is a far more haphazard affair than might be imagined from a consideration of the scientific method: “An apparently arbitrary element, compounded of personal and historical accident, is always a formative ingredient in the beliefs espoused by a given scientific community at a given time” (Kuhn 1996, p. 4).

Science is not the only arena in which these revolutions occur. In the past fifty years, for example, equal pay for women, no-fault divorce, the Child Support Agency, HECS – and their international equivalents – have rewritten the social landscapes of most liberal democracies. The HECS scheme, an Australian innovation by ANU’s Professor Bruce Chapman, is now copied around the world and instrumental in funding a four-fold expansion of higher education opportunities in the space of two generations, making higher education accessible to sectors of the population previously excluded. The funding required by thus extending higher education now seems to make such levies inevitable (although the relative amounts of private and government contributions to the costs of the higher education system are hotly debated).

There is no doubt that there has been significant, and society-changing, social innovation over the past fifty years. Yet these social and economic paradigm shifts are rarely included in celebrations of Australia as a creative nation. Yet such creativity requires harnessing.

Kuhn, providing examples of anomalous nature of scientific advances, comments “Both during pre-paradigm periods and during the crises that lead to large-scale changes of paradigm, scientists usually develop many speculative and unarticulated theories that can themselves point the way to discovery” (Kuhn 1996, p. 61). The word crisis is used because the paradigm that fails has hitherto been accepted, embraced and promulgated; it has been normalised into scientific thought. When the accepted scientific orthodoxy fails, there is a crisis. It is not surprising if a new paradigm fails – something new is essentially an experiment. Kuhn’s crisis only occurs when a paradigm that has been reliable ceases to be so. Such an event triggers extreme urgency to replace the failed paradigm with the discovery of a more workable alternative. “Often, however, that discovery is not quite the one anticipated by the speculative and tentative hypothesis” (Kuhn 1996, p. 61). Speculative, tentative, unarticulated, anomalous – these adjectives are less associated with the sciences than with the arts, yet they are hallmarks of innovative activity.

Kuhn was himself a disciplinary polyglot, studying Physics at Harvard in the 1940s and progressing in that subject from his Bachelors through to his Doctorate. However, among Kuhn’s teaching duties as a graduate student and as a young lecturer was a course in the history of science, which he delivered to his Harvard students between 1948—56. Kuhn’s next position – at the University of California, Berkeley – was not as a lecturer in science, but a joint appointment between History and Philosophy. It was while at Berkeley that Kuhn wrote *the Structure of Scientific Revolutions* (first published in 1962), through which he became a household name.

2007 Australian of the Year, Tim Flannery, made an equivalent, if opposite, journey. Author of *The Weather Makers* (2005), and an acclaimed scientist, explorer, conservationist and zoologist, Flannery’s first degree was Literature, including the then-traditional study of *Beowulf*. Arguably it is this grounding, as much as his scientific credentials that has made him a consummate communicator and enabled him to engage Australians on a decades-long journey to respond to climate change.

Both Kuhn and Flannery demonstrate that storytelling, coupled with science, is more powerful than either talent alone. They are, in a sense, their own multi-disciplinary teams promoting their own innovation agendas. The suspicion is – with the notion of the paradigm shift; with the science of climate change – that in many arenas findings and innovations in science and technology have outstripped society’s current capacity to internalise and act upon such findings. This is not to suggest that scientists and technologists should stop and allow the rest of us to catch up. Instead, it is a suggestion that we recognise the greatest boon to innovative uptake may lie in the harnessing of the non-sciences to scientific endeavour – in using the arts, humanities, social sciences and education to progress an innovation agenda throughout Australian society. A first suggestion would be to deliberately create collaborative multi-disciplinary teams where the outcomes are more in line with responses to Kuhn’s paradigm crises – in that they are speculative and unarticulated – and experiment with the outcomes. A straightforward suggestion might be the appointment of a Chief Arts Innovator in parallel with the role of the Chief Scientist.

There would appear to be an opportunity here to redesign the National Innovation System: a chance for more Creative Industries input into the innovation debate. The role of the Creative Industries involvement would not only be as the storyteller, but as an important ingredient in the overall innovation mix. Such involvement would constitute a corrective to the ‘science-alone’ orthodoxy. It would also challenge ‘traditional’ manifestations of *National Innovation Systems*, such as those presented by the OECD report of that name (OECD 1997) which strongly links innovation with technology and with economic issues: “Technology-related analysis has traditionally focused on inputs (such as research expenditures) and outputs (such as patents). But the interactions among the actors involved in technology development are as important as investments in research and development. And they are key to translating the inputs into outputs.” (OECD 1997, p. 3) In adding that “The study of *national innovation systems* [original italics] directs attention to the linkages or web of interaction within the overall innovation system” (ibid.), the authors of the report clearly indicate that the system is conceived as predominantly closed, as well as predominantly technical, and is not conceptualised as drawing from the creativity in the wider community, as Creative Industries increasingly do.

It is not likely that championing the inclusion of the Creative Industries and everyday innovators into Australia’s national innovation system will be easy. Further, the notion that Australians could make specific contribution to the international debate by deliberately espousing interdisciplinary research is a challenging one. Multi-disciplinary and cross-disciplinary research is generally recognised as a problematic and the barriers against such research are traditionally formidable – so much so that particular attention was paid to these in the recently-past discussions about a Research Quality Framework (RQF) for Australia. For example, in 2005 the RQF Expert Advisory Panel working group on *Mechanisms of Assessment – Panels/Cross-Disciplinary Research* commented that “It is at the boundaries of disciplines that major advances are frequently made” (RQF 2005, p. 1), going on to say that 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)

Although an argument is adduced from Australian Research Council experience that suggests that grant applications identified by the applicants as being cross-disciplinary are no less likely to be funded (ARC 2005) than those submitted within disciplinary boundaries, these applications may well be more cognate – as in bioethics – than “non-cognate”, “very different” (RQF 2005, p.8), “speculative” or “tentative” (Kuhn 1996, p. 61). It would seem unlikely that speculative or tentative applications for ARC grant funding ever get supported.

The documentation prepared by the National Innovation System Review panel inviting public submissions (NISR 2008) included some eight open questions, seven of which preceded a series of supplementary pointers. These are fabulous questions. They encourage the exploration of possibilities. They indicate that perhaps the National Innovation System itself could be on the verge of a shift. Even so, some of the questions embody assumptions that lead to more restrictive thinking. For example, one prompt sequence asks “As a relatively small country, how does Australia prioritise its innovation efforts to make the most of what it has or can do?” The supplementary comments go on to note that “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?”

One answer might be to critique the foundation for the question – limitations placed upon Australia because of its size – and extrapolate from Australian perspectives on this issue. Australians see themselves as a big country. For example, Australians do not say ‘as a relatively small country we can only prioritise one football code’. Instead, audiences, fans and sponsors go where the energy is – into many sports, games and codes. Australians are a passionate and energetic nation. There is huge social, innovative and audience-involving energy in our communities, our social institutions and in our Creative Industries. Harnessing the Creative Industries to the Innovation System offers a commitment both to multi-disciplinarity and to engaging publics in ways required to diffuse innovation through the nation and prompt more innovative responses from citizens at the grass-roots.

A different response would be to accept the limitation as outlined and suggest that Australia responds to the challenge by prioritising innovation that is multi-disciplinary. Accepting that there are issues, as identified by the RQF Expert Advisory Group, multi-disciplinary research also heralds opportunities as yet untapped. Redesigning the National Innovation System to harness the Creative Industries would be a way to prioritise Australia’s investment in innovation and champion the possibility that we may be able to do things better than other nations that are more bound to the old paradigms.

Another potential problematic raised by the prompts for discussion is the idea of a (as in a singular) National Innovation System, insofar as this is conceptualised as a funnel through which innovation is channelled. Returning to Kuhn, scientific revolutions only appear linear in hindsight. An exploration of the circumstances at the time of the innovation – before it becomes the new orthodoxy – indicates the multiple cul-de-sacs, branches off and meanders that are part of a new discovery. Indeed, dead ends may seem for a while to be the new discovery. A ‘System’ that solely champions pragmatic work and eschews alternatives and experiments will result in half-realised progress. True innovation requires open ended experimentation, and also includes the re-embracing of perspectives that may have been discarded or rejected at earlier stages. This is sometimes the hallmark of a paradigm shift.

According to Kuhn, the solution to each of the crises provoking a paradigm shift “had been at least partially anticipated during a period when there was no crises in the corresponding science; and in the absence of crisis those anticipations had been ignored” (1996, p. 75). Might the Australian Innovation System itself be in crisis? Might we be looking instead to build a National Innovation Experiment? (Or even a shared National Innovation Experience; or a National Innovation Engagement; or a National Innovation Enterprise?) What solutions might already have been anticipated, but ignored?

Such discussions have been underway for some time in the United Kingdom (e.g. Howkins 2001), which started its engagement with the Creative Industries some years before Australia embraced the conversation. A key UK cross-disciplinary body – the National Endowment for Science Technology and the Arts (NESTA) – has sponsored an investigation of ‘soft innovation’ which, according to author Stoneman (2007), comprises “changes in goods and services that primarily impact upon sensory perception and aesthetic, rather than functional, appeal” (Stoneman 2007, p. 3). Aesthetics here include fashion, perfume, recordings, books, performances etc (pp. 5, 13) and is clearly inclusive of the products of the Creative Industries. Stoneman differentiates between TTP (Technological Product and Process) innovation and soft innovation claiming that TTP is “[a]t the centre of mainstream OECD definitions of innovation” (p. 4) while “OECD guidelines on the definition of innovation have ruled out soft innovation as innovation” (p. 2). Stoneham also indicates that this situation may be changing: Australia’s redesign of its innovation system to incorporate the Creative Industries has the potential to demonstrate the way forward.

Higgs, Cunningham and Bakhshi (2008) indicate that Australia is already leading a new debate in terms of its capacity to investigate the economic contributions of people employed in creative jobs in the creative industries, in service jobs in the creative industries and in creative jobs serving non-creative industries: the “creative trident” (Higgs et al 2008 p. 34, Higgs & Cunningham 2007, Cunningham 2007).

In terms of conventional approaches to a National Innovation System, it has always been a non-sequitur that the everyday uses of ‘creative’ and ‘innovative’ are more likely to be associated with the arts than with the sciences, yet these everyday uses of creative and innovative tend to be ignored in policy-speech, where the terms are gazetted instead for patented ideas and technological improvements. It is time to draw everyday, policy and economic discussions together. The integration of the Creative Industries within the National Innovation Experiment is one way to do this. Such a process is already foreshadowed in the UK, where a study into the contribution of the Creative Industries sector to innovation in the wider economy is underway. An input-output analysis has been published in a working paper *How linked are the UK’s creative industries to the wider economy?* (Experian 2007), which argues that both forward and backward supply-chain links between the Creative Industries and the wider economy have been consistently strengthening over time (2007 pp. 17-22, 27).

The arts are effectively the workshops and the training grounds for the Creative Industries (although not all practitioners accept this [Petelin 2006].) Arts researchers in Australia have for some time struggled (Green 2006) to achieve recognition of their hallmark research methodology ‘Practice-led Research’ (also called variously ‘Practice-based research’, ‘Performative research’, and ‘Research through practice’, amongst others). This methodology is more exploratory and intuitive than that traditionally associated with quantitative and scientific research. Although clearly not a quantitative approach, there is legitimate debate over whether it is a qualitative

methodology (akin, for example, to action research) or whether it is a third methodological approach alongside quantitative and qualitative methodologies (Haseman 2006). An innovation system that is redesigned to embrace multi-disciplinary interests and incorporate the Creative Industries could benefit also from experimenting with Practice-led research methods wherein the practice is integral to the research and to its outputs.

As a smaller nation, according to the Review taskforce, Australia may have the added advantage of being less unwieldy and cumbersome when it comes to adopting new ideas. As well as being energetic and passionate, Australians are known for their willingness to adopt new technologies and new ways of doing things. Such a national characteristic would be harnessed in the suggestions here. Also relevant, however, is the creative potential of Australia's national and geographical positioning as the West-within-the-East, and its federated political status including acknowledgement of both shared and competing common goals. An innovative National Innovation Engagement would seek to capitalise upon these perspectives and benefits since they help ensure that the international contribution we will make in the coming decades will be a contribution that could be made by no other nation and thus a contribution which can engage Australians of all backgrounds and ages.

Australians are often reminded that they live in "an increasingly competitive and, now increasingly unpredictable, world" (Rudd 2008). That goes across the board: for the creative industries, for the innovation agenda, and for design. How can we be creative and innovative and make something fit for purpose when the world – let alone the purposes to be served in it – is so unclear? This paper has outlined one response. Rudd's answer is "long-term productivity growth [...] productivity-building targets will include, but not be limited to, key indicators for skills, education, innovation, infrastructure" (Rudd 2008). Harnessing the Creative Industries to this enterprise would recognise national talents and engender the passion and energy to build environmentally-appropriate skills and competencies. Education and engagement in a uniquely multi-disciplinary East/West creative experiment uniting arts, science, technology and the creative industries would help drive innovation; partly with the benefit of Rudd's promised high-speed broadband infrastructure. We look forward to the promised Green Paper in July.

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