PMSEIC Working Group on "The Role of Creativity in the Innovation Economy"
A submission from the Council for the Humanities, Arts and Social Sciences (CHASS)

Introduction

CHASS welcomes this opportunity to contribute to PMSEIC's consideration of the role of creativity in the innovation economy. As the peak body representing the humanities, arts and social sciences sectors across Australia, we have a strong interest and day-to-day involvement in this debate and would like to engage further with the Working Group as its work progresses.

We believe that the terms of reference and the questions provided for discussion can best be addressed in the context of three overarching questions:

1. What is the role of creativity in the Innovation Economy?

2. How can we foster and develop creativity in ways which support economic development?

3. How do we support the development of productive and practical relationships across the HASS and STEM (Science Technology Engineering and Medicine) disciplines to enhance creativity, in terms of education and training, research and other productive fields of activity?

In responding to these three crucial questions, we have sought to provide examples where appropriate. However, this submission represents only a fraction of the ideas and examples offered by CHASS constituents, and we would be happy to expand upon it.

1. What is the role of creativity in the Innovation Economy?

Arthur Koestler defined creativity as `the defeat of habit by originality'. This definition clearly links creativity to innovation - the generation of new ideas, and their take-up by people. In a global economic environment where ideas, knowledge and skills have taken over from agricultural produce and minerals as the most valuable commodities, creativity clearly is a prerequisite for economic growth. Indeed, a special report in Business Week Online argues that the so-called `Knowledge economy' is rapidly being eclipsed by `the creative economy', driven not so much by scientific information and knowledge as by imagination and lateral `right-brain' thinking.  It cites the example of Proctor and Gamble, who employed creative designers to work directly with its research and development area, resulting in innovative products that were `consumer-centric' rather than technology driven.[1]

Creativity can be a social process, as well as the product of individual capabilities and orientations. Creativity is not the preserve of any particular discipline and, as John Howkins, author of "The Creative Economy" (2001) argues, artists don't have a monopoly on creativity. It can equally be the province of scientists and business people. Indeed, artists working in the university sector have described scientists as their natural allies, insofar as both groups rely on hypothesis and experimentation - in themselves creative activities – to generate new knowledge; and they recognise similarities in the environments of the laboratory and the studio.

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[1] Bruce Nussbaum, Robert Berner, Diane Brady, `Get creative! How to build innovative companies', *Business Week Online*, August 1 2005.

Given the diffuse and multi-disciplinary nature of creativity, understanding its role in the so-called `Innovation Economy' and – more importantly – determining how we might support this role and foster a `creative culture' is a challenge.   Some ideas and examples as to *how* creativity fuels economic growth are as follows:

1. Creativity fosters new approaches to problem-solving by bringing together disparate knowledge and ideas in new ways. It can be sparked by interaction and connections between different world views, different ways of thinking and different fields of knowledge. A simple, oft-invoked example is in the field of mathematics known as "combinatorics" which introduces the image into the notion of formal proof. Combinatorics uses pictures - creative visualisation – to explain mathematical processes which formal mathematical languages and symbols have captured inadequately, and some of its most effective practitioners have been people who lacked formal mathematical training but have, through their creative, visual approach to problem solving, advanced mathematical knowledge and understanding.[2] This type of approach can be extended to the 'big issue' problems facing society, which are increasingly complex and multidisciplinary in nature, and so require multidisciplinary solutions. Salinity, terrorism, indigenous health and biotechnology, for example, all have technical, social and cultural dimensions which require creative and multidisciplinary approaches.

2. As the changes wrought by globalisation and the digital revolution become more apparent, the importance of creativity in education and training increases. The labour market of the future will increasingly demand high-level, generic skills such as flexibility, sophisticated communication skills, the capacity to re-engage with education and training throughout a working life, imagination and cross-cultural understanding. Therefore the importance of a `creative education' which incorporates inter-disciplinary and personal and social learning as well as bodies of discipline-specific knowledge can only increase. So too will the development of creative capabilities across all discipline areas.

3. Creativity is in part a product of place and circumstance. The concentration of such interactions, connections and world views in creative knowledge `clusters' can generate economic development, innovation and creative capability across disciplines and industries.  This is the theory underpinning Richard Florida's analysis of the `creative class' and, more recently, the `creative city'. For example, Lab.3000[3] in Melbourne successfully operates as a broker and catalyst for collaboration between digital design industries, cultural institutions and education providers in building capability and developing solutions across design-related industries. In the process of doing so, it crosses educational borders, providing industry-oriented educational opportunities in design for senior secondary school students, TAFE students, research students, and practising professionals. It also draws on, and supports, university-based research in design-related disciplines.

4. Notwithstanding the cross-disciplinary nature of much creative activity, those fields of study and endeavour which are most readily identified with creativity can play a direct role in driving innovation. For example, cross-cultural understanding is assuming increasing importance in the world of global business; so the study of languages and cultures are integral to future economic competitiveness. Theatre is being used in educating doctors to deal with the human dimensions of their work, and surgeons in the UK are given training in the visual arts. Artists and graphic designers are working with scientists and technicians on projects such as human/machine

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[2] Dr. Josko Petkovic, NASS, Murdoch University ` Thinking Visually', submission to CHASS, July 2005.

[3] http://www.lab.3000.com.au/

interaction. More generally, the social sciences and humanities, with their focus on apparent intangibles such as cultural traditions, social values, ethics, philosophy and ideology, underpin questions which are crucial to economic development: for example, how do we support a civil society? What do people want and need? How do we encourage democratic participation? Does xeno transplantation have a role in our society? In short, these disciplines provide reservoirs and pathways to human creativity across the board.[4]

2. How can we foster and develop creativity in ways which support economic development?

1. Foster a creative culture by recognising its worth: that is, through acknowledgment and celebration.

   Options worth considering include:

   - the creation of a national humanities and a national social sciences prize (along the lines of the US Humanities medals recently awarded by George Bush to celebrated US practitioners in the arts.)

   - Developing reward systems for creative thinkers in knowledge organisations more generally – for example, academics' research output is measured by the Commonwealth in the form of a narrow range of traditional research outputs. Output in the performing and visual arts is not recognised at all for funding purposes. We need either a more comprehensive definition of research which accommodates practice-based research with artistic output, *or* a parallel rewards scheme for academics working in these fields.

   - a renaming of PMSEIC to reflect its focus on activity and outcomes rather than disciplinary orientation; so that it becomes the Prime Minister's Innovation and Creativity Council (PMICC); with a multidisciplinary membership reflecting this focus. A chief scientist *and* a chief social scientist *and* a chief humanist – sharing staff, with offices side-by-side – could make for further creative synergies!

   - support for multidisciplinary fora focused on `big picture' ideas, open to the public (along the lines of South Australia's `Festival of Ideas'); and for small scale multidisciplinary workshops of researchers and practitioners explicitly focused on `real world' problems (eg tackling skills shortages; reducing childhood obesity; creating sustainable energy options) as a problem solving alternative to conferences aimed to practitioners and researchers in a narrow band of disciplines.

2. Recognise and support the conditions which are conducive to creativity. Many creative thinkers and practitioners note that rigid organisational and academic structures are anathema to creativity, as are discipline-based `silos'. This is a real problem in an education system which is more heavily bound than ever by short-term funding constraints, the delivery of narrowly-defined outcomes, and adherence to rigid accountability mechanisms. If we want to encourage creative, nimble thinking within schools, universities and TAFE colleges, we should support and fund the development of organisational and curriculum structures which are flexible, which are focused around broad goals and outcomes, and which encourage experimental, long-term thinking in their staff and students.

3. Linked to the above is the need to identify and support the development of `creative clusters' in which industry, government, and knowledge organisations (universities, TAFE colleges, other education and research providers) can come together to generate an environment that supports creativity.

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[4] Peter Quiddington, submission to CHASS, July 2005.

4. Develop a national school education strategy for the humanities, arts and social sciences (parallel to the work previously done in science, mathematics and technology). This is currently a project being undertaken by MCEETYA (the Ministerial Council on Education, Employment, Training and Youth Affairs), but it could be extended through PMSEIC to include the development of a `creative curriculum' across all disciplines at the school (K-12) level.

5. Make it easier for people in the HASS sector to commercialise their work, through a series of measures detailed in the CHASS paper *Commercialisation of research activities in the humanities, arts and social sciences in Australia*.[5] These measures include improving the skills and effectiveness of people working in the commercial arms of tertiary institutions through training programs and incentive programs; and building the business skills of researchers.

3. How do we support the development of productive and practical relationships across the HASS and STEM disciplines, in terms of education and training, research and other productive fields of activity?

1. Support the development of education and training which is multidisciplinary and interdisciplinary in nature, focused around questions/solutions rather than bodies of knowledge. For example, Harvard University has introduced a course on `thinking about thinking' that draws on methods and ideas from across the disciplines of law, biology, psychology and the social sciences. At a practical level, RMIT offers a suite of degree programs focused on the computer gaming industry which are not `owned' by any particular discipline, but which bring together visual arts and design, communication, business skills, information technology and applied science.

2. Support the piloting of ` foundation year' programs for students in universities and TAFE colleges, which offer a generalist first year to provide all students with a multidisciplinary grounding. More radically, consider the differentiation of universities in Australia to encourage the development of 'liberal arts' (really foundation arts and sciences) colleges with pathways into graduate professional training based on the US model of small scale, high quality universities that aim to educate students rather than only preparing them for a job.

3. Offer active support for industry-funded research and development across disciplines – amendments to the R&D tax concession scheme (or the creation of a new complementary scheme) to encourage industry investment in cross-disciplinary and multidisciplinary research would be a good start. (Companies investing in research in the humanities, arts and social sciences are specifically barred from accessing the R&D Tax concession scheme.)

4. Recognise emergent, cross-disciplinary fields of knowledge, and provide funding incentives for cross-disciplinary research and projects. A pool of research funding to support collaborative ventures, governed by an interdisciplinary committee charged with assessing applications from a multi-disciplinary perspective, would provide practical incentives for creative collaboration across disciplines. There are some established schemes and models which could be further explored and supported, such as the Australia Council/ARC 'Synapse' initiative which seeks to foster collaborations between artists and scientists via a specific set of funding opportunities. The program has the input of ANAT (Australian Network for Art and Technology) which places artists on residencies with science organisations for the purpose of carrying out projects of mutual interest. There are also international organisations such as ASCI (Art and Science Collaborations

Inc.) which seeks to provide practical support to collaborations between artists and scientists. These models need to be examined with reference to their suitability for the Australian context.

4. Possible extra actions

1. Introduce a government program to encourage industry to employ recent PhD graduates. The decision of the pharmaceutical company GlaxoSmithKline to locate its Asian R&D headquarters in Singapore was based in part on the financial subsidy the Government there offered. Singapore agreed to pay the salary, training, travel and on-costs for all recent PhD graduates the company employed, for a period of two years. This program encourages industry to employ people trained in research methods and in knowing where to find the answers to specific issues; and is an effective way of transferring ideas and skills from research to industry.

2. Introduce an element of "industry-readiness" into the PhD process, through extending the short courses on IP, project management, copyright and presentation skills offered at several universities (eg the University of Queensland). Courses could also draw on the experiences offered graduate students attached to Cooperative Research Centres, and incorporate an element of mentoring or experience with an industry partner.

3. Organise a conference for PhD students, on either a national or regional basis. This would enable them to come together, present papers on their work, hear experienced speakers addressing useful issues, discuss matters of mutual interest across disciplinary boundaries, hear about each others' work. It could incorporate a PhD student of the Year award, in similar terms to the highly successful Young Scientist Award the CRC Association has developed. A possible model is provided by the ERA (Emerging Researchers in Ageing) annual conference, now in its fourth year which is now run through the ARC-NHMRC Ageing Well Network.

4. Build on the skills and experience of the directors of centres for research and education in the tertiary sector. The best of these centres run collaborative, cross-disciplinary, cross-institutional programs which engage with industry, and create concentrations of skills on a particular issue or problem. These centres could be enhanced and encouraged in their endeavours and present a new focus for tertiary activities, through a new funding program which offered them a degree of financial stability. The program should support a national annual meeting, to enable centres to learn from the practices of others in the same way the annual CRC Association conference.