

# Universities and the public good

A review of knowledge exchange policy and related university practice in Australia

**Michael Cuthill & Éidín O'Shea**

University of Southern Queensland

**Bruce Wilson**

RMIT University

**Pierre Viljoen**

Central Queensland University

Australian policy relating to knowledge exchange has never been well articulated, notwithstanding that the nexus between knowledge, engagement and higher education in Australia has been on the national agenda for several decades (Grattan Institute, 2013). In universities, this policy deficit is reflected in a lack of project management and collaboration skills, and limited motivation of researchers to engage in collaborative knowledge exchange processes. Taken together, poor policy and inadequate practice constrain the effective use of knowledge in socioeconomic development and national innovation. This paper primarily focuses on the knowledge exchange policy–practice nexus in Australia. We adopt the term ‘knowledge exchange’ while acknowledging many other related concepts, such as knowledge transfer, university community engagement, integrative applied research and engaged scholarship. We draw attention to international contexts in which universities, governments, industry and funding agencies are now explicitly supporting and facilitating collaborative knowledge exchange activities. Our review suggests that Australia needs a clearly articulated national knowledge exchange policy, along with enhanced university capacity to implement knowledge exchange initiatives.

## Introduction

The idea that universities have an obligation to the public good dates back to at least 1200 AD with the advent of the earliest European universities, such as Bologna, Paris and Oxford (Cuthill, 2012; Brown & Muirhead, 2001). As such, universities have long promoted themselves and justified public funding on the grounds that they serve this public good (Collini, 2012). This is currently subject to debate in forums across the world at a time when uni-

versities are under increasing pressure to clearly demonstrate their societal benefits while producing high-quality, high-impact scholarship, and operating as astute business managers.

The increasing demands on universities have prompted calls for new kinds of university, those that are responsive to the needs of society and are prepared to adopt collaborative approaches to their scholarship (Barber *et al.*, 2013). These universities have been variously described using terms such as ‘open university’ (Miller & Sabapathy,

2011), 'innovative university' (Christensen & Eyring, 2011), 'engaged university' (Petter, 2013), the new 'public university' (Burawoy, 2011) and Goddard's (2009) concept of a 'civic university'. The core concept here is that all publicly funded higher education institutions have a civic duty to engage with the wider society – at local, national and international levels – on issues of public relevance.

The focus of public good universities is presented in different ways:

- addressing the so-called grand challenges of the 21st century (Barber *et al.*, 2013)
- increased public policy focus (European Commission, 2012)
- scholarly interaction with industry, focusing on the valorisation of intellectual property (Brenzitz & Feldman, 2012)
- scholarly engagement involving public, private and community sector stakeholders that contributes to social justice and development (Kajner, 2013; Cuthill, 2012).

Each of these centres in one way or another on the sharing – the exchange of knowledge – between university researchers and public actors who wish to contribute to new knowledge and to use it. This paper presents a review of knowledge exchange policy and practice in Australia. Four underlying components are commonly seen to define the broad concept of knowledge exchange (for example, Davis, 2013; Dwan & McInnes, 2013; Cuthill, 2012; Australian Universities Community Engagement Alliance [AUCEA], 2006; Carnegie Foundation, n.d.; Boyer, 1996). These include:

- a focus on high quality scholarship
- stakeholder collaboration
- mutually beneficial outcomes
- public good intent.

In combining these four components, knowledge exchange moves the application of scholarship past the narrowly conceived historical notion that scientific knowledge originates in the university and is passed downstream to various communities who absorb it and put it to a practical use (Varga, 2009). Rather, as Australian Primary Health Care Research Institute (APHCRI) (APHCRI, 2011, p. 5) states, 'Knowledge exchange is a process that aims to get research knowledge into action; it has an "applied" focus into either decision-making or practice settings.' International knowledge exchange policy initiatives provide some direction as to how Australian national policy might respond.

While we have adopted the term knowledge exchange, we also acknowledge many other related concepts

(Cuthill 2011, p. 22, for example, identifies 48 interrelated terms). These include, for example:

- knowledge transfer (Varga, 2009)
- integrative applied research (Bammer, 2013)
- university community engagement (Holland, 2005)
- engaged scholarship (Cuthill & Brown, 2010;)
- third mission (Watson *et al.*, 2013).

As Bammer (2013, p. 5) argues in responding to 'complex real world problems ... [we need to address the existing] ... combination of fragmentation, unorganised diversity and dogma' evident within this proliferation of related terminology and approaches.

The international literature on knowledge exchange and related concepts has blossomed, all with an explicit focus on partnership, collaboration and engagement with external partners, (Kajner, 2013; Jones, 2012; Brenzitz & Feldman, 2012; Schuetze, 2010). This signals a shift from a sole focus on the academic as an 'expert producer of knowledge', to a much stronger focus on 'collaborative knowledge processes' (Cuthill & Brown, 2010, p. 129). Gibbons *et al.* (1994) describe this shift as a move from the more traditional model of segregated knowledge production, which they call Mode 1, to a new broader approach – Mode 2 – in which universities are identified as one stakeholder among many knowledge producers in a new, more fluid and interdependent approach to scholarship (Table 1).

The collaborative approach to knowledge exchange is supported through recent methodological initiatives (Cuthill, 2012; McIlrath & Lyons, 2012). Holland (2005, p. 11), for example, describes how an 'engaged' approach to scholarship is being increasingly embraced by universities around the world, 'as an expression of contemporary research methods and as a reinterpretation of the role of higher education in creating public good'. Hence, collaboration and exchange should be seen as supporting new, more flexible approaches to intellectual enquiry – methodology based on the development of strong and genuine

**Table 1: Characteristics of Mode 1 and Mode 2 scholarship**

Mode 1	Mode 2
Disciplinary	Transdisciplinary
Hierarchical	Participatory
Pure or Applied	Applied
Linear	Reflexive
Quality is academically defined	Quality is both academically defined and socially accountable

(Cuthill, 2010; Gibbons *et al.*, 1994)

knowledge partnerships. As the Association of Commonwealth Universities stated (2001, p. i):

Increasingly, academics will accept that they share their territory with other knowledge professionals. The search for formal understanding itself, long central to the academic life, is moving rapidly beyond the borders of disciplines and their locations inside universities. Knowledge is being keenly pursued in the context of its application and in a dialogue of practice and theory through a network of policy advisers, companies, consultants, think-tanks and brokers as well as academics and indeed the wider society.

This points to a policy challenge in which, in today's competitive marketplace, the viability and sustainability of much Australian business, and the subsequent regional and national flow-on benefits, heavily rely on a diverse range of collaborative knowledge exchange partnerships (Ernst & Young, 2012). As previously noted, these partnerships extend beyond a sole industry focus, and include ongoing calls for publicly funded research to contribute more to public policy, social development and economic prosperity. Yet the policy framework to support such allocation of public resources is fragmented and contradictory. Australia is not alone in this context. Moore, Hughes and Ulrichsen (2010, p. 22) argue that in the US, there is 'evidence of coordination failure of the knowledge exchange system as a whole, although component parts may be functioning well'. Other international examples provide further context to inform Australian developments.

### Exploring international perspectives on knowledge exchange policy and practice

Recent reports (Brewer, 2013; McKelvey & Holmen, 2009) have mapped the changing role of universities and their contribution to economic prosperity, social development and national innovation systems. This role has been discussed in the aftermath of the global financial crisis where governments have directed attention to universities and their potential to support recovery (Hughes & Mina, 2012). However, Deiaci *et al.*, (2012) note that while a collaborative knowledge exchange role for universities has been increasingly emphasised, so too have other pressures been raised.

Clearly, the competitive business of higher education and the demands for more collaboration and relevance is proving challenging for senior managers. As Deiaci *et al.* (2012, p. 523) describe:

Universities are thus increasingly being pressed to act strategically in relation to external pressures and funding streams. In addition to the strategic imperatives of

responding to national policy and global social challenges, new competitive regimes for national universities are also now related to the increasing globalisation of student flows, funding resources and faculty.

Higher education institutions have developed strategies relating to engagement, industry and community partnerships, research commercialisation and international development in response to these challenges. Goddard (2009, p.4) stresses the importance of such strategies within institutions arguing that there

has to be an institution-wide commitment, not confined to individual academics or projects. It has to embrace teaching as well as research, students as well as academics, and the full range of support services. All universities need to develop strategies to guide their engagement with wider society, to manage themselves accordingly and to work with external partners to gauge their success ...

The move beyond piecemeal or disparate activity to a more coordinated approach to knowledge exchange is a recurring theme within the literature. Both explicit national policy and structured institutional capability are necessary for effective coordination to be achieved. To support these developments, a variety of local, national and international networks have sprung up to support the various emerging knowledge exchange processes (Community-Campus Partnership for Health, 2012; Global University Network for Innovation, 2011; Hall, 2009; Australian Universities Community Engagement Alliance, 2006; Talloires Network, 2005).

Internationally, there are examples of strong policy support for and direction to collaborative knowledge exchange processes. The European Commission, for example, promotes a modernisation agenda for university reform, defining the role of universities as being to exploit the so-called 'knowledge triangle of research, education and innovation' (Lund Declaration, 2009; European Commission, 2007). Funding streams to support this agenda are emerging and the European Commission will soon launch Horizon 2020, organised to address societal challenges rather than disciplinary fields. This funding instrument (2014-20), with a budget of more than €70 billion, aims to deepen the relationship between science and society by favouring an 'informed engagement of citizens and civil society on research and innovation matters' (European Commission, 2012, p. 4). Horizon 2020 will support good practice in public engagement by focusing on the need for new tools and methods to foster public engagement at the work program and individual level across all areas of Horizon 2020, and appropriate monitoring activities that can

differentiate between the simple transmission of results approaches and those involving full engagement with the public at all stages of the program cycle (European Commission, 2012, p. 15–16;).

The United Kingdom has also established funding streams supporting knowledge exchange in higher education. This funding was facilitated by the Beacons for Public Engagement, who were charged with promoting, facilitating and embedding public engagement across universities (Watermeyer, 2011; PACE, 2010). A review study, with input from 22,000 UK academics, found scholars from all disciplines were engaged in knowledge exchange processes with a diverse range of partners (Abreu *et al.*, 2009). In supporting a broad knowledge exchange agenda, the National Co-ordinating Centre for Public Engagement, the Beacons for Public Engagement and the Research Councils UK developed the Vitae Researcher Development Framework (see Vitae, 2011) in support of capacity development in the sector. This is an overarching framework that identifies the wide range of knowledge, behaviours and attributes of excellent engaged scholars.

Institutions have followed this policy lead. University College London (UCL) provides one such example. Professor David Price, UCL's Vice-Provost for Research, in an interview to the *Times Higher Education*, argued that research-intensive universities can justify their high levels of funding only if they address major challenges and by applying knowledge 'for the good of humanity' (Jump, 2012). Accordingly, UCL has identified four multidisciplinary institutional-wide 'grand challenges' to facilitate public issues research. These are global health, sustainable cities, intercultural interaction and human wellbeing. Professor Price stressed that, by addressing societal problems in this way, UCL emphasises the development of 'useful knowledge' (Jump, 2012).

In Malaysia, a recent national policy initiative allocated significant funding to four major universities to develop stronger industry and community partnerships. Professor Kaur-Gill, Deputy Vice-Chancellor for Industry and Community Partnerships at the National University of Malaysia (UKM), in outlining the UKM process of institutionalising such partnerships within the university, identifies critical initiatives implemented by UKM in

responding to the national government agenda (Kaur-Gill, 2012, p. 31). These are:

- leadership at senior and middle management level;
- clarity of conceptualisation
- institutionalisation
- quality assurance
- capacity building programs
- incorporating reward and recognition systems
- funding streams.

In Canada, recent collaborative knowledge exchange programs such as the Community–University Research Alliances (Social Science and Humanities Research Council, 2013a), *Imagining Canada's Future* (Social Science and Humanities Research Council, 2013b), *Knowledge Mobilization Strategy* (Social Science and Humanities Research Council, 2013c) and *Engagement as a Key Priority* (Social Science and Humanities Research Council, 2013d) have been

initiated through the Social Science and Humanities Research Council (SSHRC). All these programs look to promote 'fruitful engagement with SSHRC partners in the academic, public, private and not for profit sectors' (SSHRC, 2013a). Canadian universities have responded to this agenda. For example, Petter (2013, p. 1–2), President of Simon Fraser University, argues that the SFU focus on public good outcomes can be conceived

as an approach that can inform every aspect of how a university operates, educates and serves its students and its communities ... not as an exercise in altruism, but in the belief that this engagement also pays enormous dividends for students, faculty and staff – and for the university itself.

He argues, in the face of perhaps our most daunting global and local challenges, that universities have a critical role to play in helping build just and sustainable communities, and that the 'engaged university' might in future be seen less as an anomaly to be noted and observed, [than] more as a prototype to be adapted and improved upon' (Petter, 2013, p. 5).

The Organisation for Economic Co-operation and Development (OECD) (2013), through the Institute for Management of Higher Education, has also promoted greater engagement between universities and regional and city authorities. It has also sponsored three waves of reviews that have analysed how the higher education

---

**Both explicit national policy and structured institutional capability are necessary for effective coordination to be achieved. To support these developments, a variety of local, national and international networks have sprung up to support the various emerging knowledge exchange processes**

---

system impacts upon regional and local development, and facilitated stronger collaborative work and capacity building. These reviews are:

- 2005-07 *Higher Education and Regions: Globally Competitive, Locally Engaged*
- 2008-11 *Higher Education in Cities and Regions - for Stronger, Cleaner and Fairer Regions*
- 2010-12 *Higher Education in Regional City Development*

Historically, the US has had a strong focus on policy and practice in knowledge exchange. Moore, Hughes and Ulrichsen (2010, p. 7) report that the 'US knowledge exchange (KE) system has experienced significant cultural changes over the past decade, with positive changes in culture towards KE, and increased acceptance of KE related activities as a valued part of an academic's role'. This brief international review has merely skimmed the surface with regards to the many countries currently in the process of strengthening their knowledge exchange arrangements.

## Exploring Australian perspectives on knowledge exchange policy and practice

The notion that higher education can contribute broadly to the public good is compatible with historical national policy directions in Australia (Grattan Institute, 2013; Group of Eight, 2013; Commonwealth of Australia, 2012, 2009; Bradley *et al.*, 2008; Department of Education Science and Training, 2006). Public good and the role of higher education institutions was, for example, central in 2002 in the Crossroads discussion papers, with recognition that universities need to be socially responsive and foster a more active engagement with their various communities:

Higher education institutions are expected to be responsive to the diverse needs of students and the demands of other stakeholders, including staff, employers of graduates, clients of consulting services, industry, venture partners and regional communities. They need to meet the expectations of the Australian community and government and the changing needs of the economy. Higher education institutions need to develop an outward looking perspective, not an insular one (Department of Education, Science and Training, 2002, p. 32).

There have been other initiatives, including a stream of inquiries into innovation, and new initiatives such as Commercialisation Australia, the Innovation Precincts and Cooperative Research Centres. The Commonwealth of Australia (2009) argued that

Innovation is not an abstraction. Nor is it an end in itself. It is how we make a better Australia, and contribute to making a better world – a prosperous, fair and decent world, in which everyone has the chance of a fulfilling life (Foreword by Kim Carr, Minister for Innovation, Industry, Science and Research).

The department's conception of a 'scientifically engaged Australia ... comprising the natural and physical sciences, the humanities, arts and social sciences' (Commonwealth of Australia, 2009 p. xiii) is directed by a national strategy for a result of which, the Australian knowledge exchange policy response still remains thinly spread.

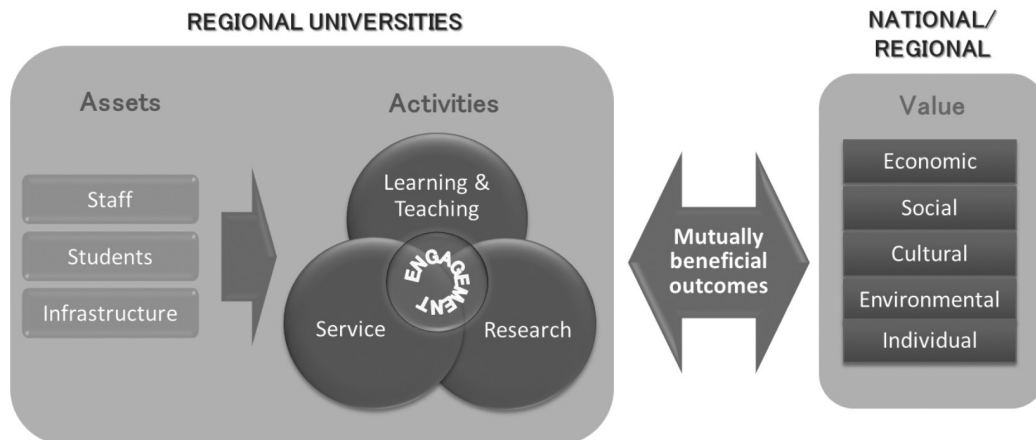
In Australia the breadth and quality of knowledge exchange activity is still largely unknown (Grattan Institute, 2013; Bammer, 2013; Charles & Wilson, 2012; Bradley *et al.*, 2008), with little understanding of research impact from collaborative knowledge exchange. This continues to be an issue, despite useful current initiatives to assess research impact (Addis *et al.*, 2013; Brewer, 2013; Regional Universities Network, 2013; Kelly & McNicoll, 2011). A recent Group of Eight report on measuring innovation, for example, concludes that there are compelling stories to be told of impact arising from knowledge exchange activities at Australian universities (Group of Eight, 2012).

In another attempt to understand research impact, the Regional Universities Network (2013, p. 4) developed a conceptual framework (Figure 1) that illustrates

the process of leveraging university assets (students, staff and facilities) through operational activities (teaching and learning, research and service) centred on an engagement paradigm to produce economic, social, cultural, environmental, and individual 'value' outcomes to the specific region and more broadly for Australia. These value outcomes, in a self-reinforcing, reciprocal and mutually beneficial process, provide feedback to support the university core mission.

This conceptual framework is yet to be empirically tested and overall there is a critical lack of understanding of collaborative knowledge approaches to dealing with society's complex challenges.

Other efforts to promote the benefits of collaborative approaches are emerging in Australia. Engagement Australia (EA) is committed to leading, developing and promoting an integrated and collaborative approach to university-community engagement in Australia. They have argued that engagement built on trust and reciprocity is a multifaceted and multidimensional process and critical enabler of all university endeavours, including research, and that it has the potential to provide mutually beneficial outcomes and value for universities and participating partners. More recently, EA responded to the draft paper



**Figure 1: The 'value' of regional universities, Source: Regional Universities Network, 2013, p. 4**

Assessing the wider benefits arising from university-based research: Discussion Paper (Commonwealth of Australia, 2013). In its comments, the EA board broadly supported the paper's focus on the impact of research on society. It was also proposed that the scope could be expanded to include

a broader definition of research engagement: a definition that more strongly shows the role of science and society in responding to the critical social, economic, technological and environmental challenges communities are confronted with today (Engagement Australia, 2013).

Encouragingly, ambitious expectations have been set out by the Commonwealth government on the role of Australian universities, with an explicit focus on increased collaborations between the public and private sectors (Coaldrake & Stedman, 2013; Australian Government Advisory Council on Intellectual Property [ACIP], 2012). However, Australia currently ranks 22nd out of 28 OECD countries for public expenditure on tertiary education, spending only 1 per cent of gross domestic product (*Australian Innovation System Report*, 2011). In April 2013 the Australian government announced the biggest funding reductions to the university system and student support since 1996, with an additional \$2.3 billion to be stripped from the university system over the next four years (Universities Australia, 2013).

More significant have been the policy contradictions that still encourage universities to adopt segmented, competitive and internally focused approaches to learning and teaching, and to research, with no explicit encouragement for engagement. Australian universities' academic recognition and rewards tend to emphasise and support the more traditional focus on competitive research funds and publi-

cations rather than practical outcomes for industry or community.

**Academics on the edge: Challenges confronting Australian knowledge exchange policy and practice**

Despite the increasing emphasis on collaborative knowledge exchange, recent Australian policy debate has been disjointed, drawn thinly across at least five interrelated but distinct policy areas. These are:

- research commercialisation (ACIP, 2012)
- university community engagement (AUCEA, 2006)
- third stream funding (Australian Council of Learned Academies, 2012)
- knowledge transfer (PhillipsKPA, 2006)
- widening participation and access (Bradley *et al.*, 2008; Department of Education, Science and Training, 1990).

This approach encourages fragmented and incoherent effort at collaborative knowledge exchange. As Intzesiloglou *et al.* (2011, p. 1) argue, while 'the benefits of knowledge exchange between universities and enterprises have been documented in various cases, there is still a long way to go considering the identification of the best-suited policy framework for the enhancement of this process, on national and regional levels'. Rather, it has been left to higher education institutions themselves to support effective transmission and application of higher education research to public, private and community needs, even where there are several universities working in the same space. As a result, Australia has fallen well behind overseas examples (Grattan Institute, 2013).

This leaves a practice environment within universities that is characterised by a lack of engagement, project management and collaboration skills, and the limited motiva-

**Table 2. Priorities and constraints under which research users and producers work**

<i>Priorities and constraints</i>	<i>Research producers</i>	<i>Research users</i>
Knowledge	Depth	Breadth
Documents	Long, prose	Short, multiple headings, dot points
Timeframes	Medium–long	Short–medium
Outputs	Few and far between	Regular
Responsibility	Individuals and freedom	External parties and processes
Rigor versus pragmatism	Rigor	Pragmatism
Authorship	Personal	Usually anonymous

tion of researchers to engage in collaborative knowledge exchange processes (Universities Australia, 2013; ACIP, 2012). An ACIP report (2012) on the role of intellectual property in collaborations between public and private sectors supports this assertion of a capacity deficit. It argues that, despite the potential benefits to be had, many publicly funded research organisations’ (PFRO) current performance metrics did not sufficiently encourage the formation of collaborations with industry. In turn, PFRO researchers were concerned that they lacked capacity to effectively collaborate, and that the reward structure did not encourage such collaborations in the first place. Indeed, in many institutions, there are direct contradictions between the institutional requirements associated with teaching and research, and the requirements of partnership development and effective knowledge exchange. As a result, knowledge exchange remains on the periphery of mainstream Australian academia, despite the ongoing rhetoric that positions it as integral to a university mission (Bradley *et al.*, 2008).

This situation is further exacerbated by the continuing chorus of dissatisfaction, frustration and capacity shortfalls expressed by knowledge workers within universities (Coaldrake & Stedman, 2013; Metcalfe, 2013; Hil, 2012; Petersen, 2011; Chubb, 2013; Lynch *et al.*, 2012; Australian Council of Learned Academies, 2012; Collini, 2012; Fredman & Doughney, 2012; Matthews *et al.*, 2012; Professor X, 2011). Bexley *et al.* (2011) describe an academic workforce in transition. Their recent report, which analyses responses from 5525 participants across 20 Australian universities, finds the sector grappling with an ageing workforce in which many workers are struggling to manage workloads. Respondents argue that there is little opportunity or incentive to undertake knowledge exchange activity, which incorporates time-intensive relationship development and collaboration.

Furthermore, Australian academics are often portrayed in a negative way. Notably, Peter Shergold, Australian academic and former Secretary of the Department of the

Prime Minister and Cabinet, published an article titled ‘Seen but not Heard’ in *The Australian* (4 May 2011), in which he was critical of what he perceived was a distinct lack of any sustained, constructive contributions by Australian academics to ‘real world’ development of public policy. In another example, Hil (2012, p. 14) suggests that ‘academics have become, at least in policy discourse, shadow figures in the public eye’. The recent ACIP report generally confirms this negative perception, identifying researchers’ lack of motivation to engage in collaborative knowledge exchange processes (ACIP, 2012). Yet as ACIP explain, this situation can be largely attributed to a lack of capacity and support for university staff who focus on collaborative knowledge exchange processes.

In itself, assumptions about the collaborative capacity of researchers and research users require critical review (O’Shea, 2014). When exploring international research collaborations, Billot, Goddard & Cranston (2006, p. 43), for example, found that ‘there is limited research that provides guidance on how to undertake research collaboratively’. So, is it reasonable to assume that academics and external research stakeholders, all with diverse timeframes, skill sets and deliverables, can just come together and effectively collaborate? Such an assumption would suggest a smooth ride with high expectations of successful collaboration between academic researchers and their industry partners. But experience shows that when forming research collaborations, challenges arise between researchers and external stakeholders if competing agendas are not recognised and negotiated (Cuthill *et al.*, 2011). Dwan and McInnes (2013, p. 195, expanding on Wiseman, 2010) provide examples of potential points of difference that might challenge successful collaborations (Table 2).

Even when collaborative knowledge exchange processes are clearly visible and can be easily tracked, such as research commercialisation and patents, ACIP (2012) argues that enhancing practice capacity is still required. Opportunities for greater emphasis on knowledge

exchange processes and capacity building in less visible areas, such as regional development, public policy, urban design, community health and social justice, are evident, yet underutilised.

Career advancement is another challenge confronting Australian academics, especially when collaborative knowledge exchange processes generally are more time intensive than other forms of research. Much focus has been given to the Australian Council of Learned Academies (ACOLA, 2012) report on career support for researchers. The aim of this study was to identify the pressure points in research career pathways and identify possible solutions. Of the 1203 participants, 80 per cent reported that they found a career in research as 'very' or 'reasonably' attractive, but not the research system in which they had to work. They cited the lack of certainty of employment, the overly competitive race for grants, fellowships and jobs, and the onerous burden of administration. Respondents reported that interaction with partners was often looked down on or largely disregarded; the need for support and recognition when developing collaboration and partnerships was continually stressed. Academics across all levels, from early career to professor, indicated that Australian universities do not encourage research mobility between university, government, industry and community sectors. ACOLA suggested the need to look at the interactive nature of the US system (ACOLA, 2012). Research training pathways have come in for similar criticism.

Formal research training, especially doctoral candidature, is a key area of investment for knowledge creation and a valuable opportunity to develop knowledge exchange partnerships. Australia's chief scientist Professor Ian Chubb's recent speech (Chubb, 2013) to the Australian Mathematical Sciences Institute argued that more reflection was required in relation to the 'work-readiness' of PhD students. Stressing the importance of industry engagement and national productivity as being critically important in Australia, Chubb stated that 'unfortunately, there is a large divide between our most academically qualified citizens (our PhD graduates) and the industries that fuel our economy'. More attention is needed to support a more structured PhD program that offers a defined path, including generic training in communications skills and entrepreneurship, as well as a focus on transferable skills and greater flexibility (Council of Australian Postgraduate Associations, 2012; Commonwealth of Australia, 2011a, 2011b).

Overall, Australian higher education institutions are on the cusp of profound change, with warnings that some universities will not survive the next 10 to 15 years

unless they radically overhaul their current operating models (Ernst & Young, 2012). Urgent discussion around responses to this changing environment are required.

## Conclusions

The contemporary Australian university is now one stakeholder among many knowledge producers in a new, more fluid and interdependent approach to scholarship. Scholarship is being redefined, with a move from ivory tower conceptions of the academic as an expert producer of knowledge, to a much stronger focus on collaborative knowledge processes. This will support Australian universities to successfully adapt to their increasingly competitive market environment through development of strong and genuine knowledge partnerships with diverse stakeholders.

International experience suggests that national knowledge exchange policy, and institutional strategy, operational management and reporting are all challenging tasks, but achievable. Policy development in countries reviewed for this paper has had a positive impact on directing and supporting collaborative knowledge exchange processes within those countries' universities. In consequence, many universities are reinvigorating their focus on the public good through a new scholarly approach that is collaborative, socially accountable, applied and transdisciplinary. The investments being made in various countries and/or regions, and the potential socioeconomic and innovation benefits arising (described in our international case studies review), present a strong argument for strengthening Australian knowledge exchange policy and practice.

Without national policy direction and appropriate support, the current university business model, already under pressure from government cutbacks, is unlikely to be able to respond constructively and consistently to the collaborative knowledge exchange agenda. There is now a pressing need to address national policy arrangements to support collaborative knowledge exchange in Australian universities.

## Acknowledgements

The authors are grateful to anonymous referees for their helpful comments.

**Michael Cuthill is chair of the Regional Community Development at the University of Southern Queensland.**



**Eidín O'Shea is a postdoctoral research fellow at the University of Southern Queensland.**

**Bruce Wilson is director of the European Union Centre at RMIT and co-director of the PASCAL International Observatory.**

**Pierre Viljoen is PVC Community and Engagement at CQU and President of Engagement Australia.**

## References

- Abreu, M., Grinevich, V., Hughes, A. & Kitson, M. (2009). *Knowledge Exchange Between Academics and the Business, Public and Third Sector*. London: University of Cambridge Press/Imperial College Press.
- Addis, R., McLeod, J. & Raine, A. (2013). *IMPACT – Australia: Investment for Social and Economic Benefit*. Canberra: Department of Education, Employment and Workplace Relations.
- Australian Government. (2006). *Knowledge Transfer and Australian Universities and Publicly Funded Research Agencies—A Report to the Department of Education, Science and Training*. Canberra: Commonwealth Department of Education Science and Training.
- Australian Government Advisory Council on Intellectual Property (ACIP). (2012). *Collaboration Between the Public and Private Sectors: The Role of Intellectual Property: Final Report*. Canberra: Advisory Council on Intellectual Property.
- Association of Commonwealth Universities. (2001). *Engagement as a Core Value for the University: A Consultation Document*. London: Association of Commonwealth Universities.
- Australian Council of Learned Academies (ACOLA). (2012). *Career Support for Researchers: Understanding Needs and Developing a Best Practice Approach*. Canberra: Australian Council of Learned Academies.
- Australian Primary Health Care Research Institute (APHCRI). (2011). *Knowledge Exchange Report*. Canberra: Australian National University.
- Australian Universities Community Engagement Alliance (AUCEA). (2006). *Universities and Community Engagement: AUCEA position paper*. Retrieved from <http://traction.med.monash.edu.au:8080/traction/read?proj=Website&type=Single&rec=290&side=1>.
- Bammer, G. (2013). *Disciplining Interdisciplinarity: Integration and Implementation Sciences for Researching Complex Real-world Problems*. Canberra: ANU e-press.
- Barber, M., Donnelly, K. & Rizvi, S. (2013). *An Avalanche is Coming: Higher Education and the Revolution Ahead*. London: Institute for Public Policy Research.
- Bexley, E., James, R. & Arkoudis, S. (2011). *The Australian Academic Profession in Transition: Addressing the Challenge of Reconceptualising Academic Work and Regenerating the Academic Workforce*. Melbourne: Centre for the Study of Higher Education.
- Billot, J., Goddard, J. & Cranston, N. (2006). Critical reflections on international collaborative research, in *Critical Visions, Proceedings of the 29th HERDSA Annual Conference*, Perth, pp. 43–49.
- Boyer, E. (1996). The scholarship of engagement. *Journal of Public Service and Outreach*, 1(1): 11–20.
- Bradley, D., Noonan, P., Nugent, H. & Scales, B. (2008). *Review of Australian Higher Education: Final Report*. Canberra: Department of Education, Employment and Workplace Relations.
- Brewer, J. (2013). *The Public Value of the Social Sciences: An Interpretive Essay*. London: Bloomsbury Academic.
- Brenzitz, S. & Feldman, M. (2012). The engaged university. *Journal of Technology Transfer*, 37(1): 139–157.
- Brown, L. & Muirhead, B. (2001). *The Civic Mission of Australian Universities*. Ipswich: University of Queensland Boilerhouse.
- Burawoy, M. (2011). Redefining the public university: global and national contexts, in J. Holmwood (Ed.), *A Manifesto for the Public University*. London: Bloomsbury, pp. 27–41.
- Carnegie Foundation for the Advancement of Teaching. (n.d.). *Community Engagement Elective Classification*. Stanford: Carnegie Foundation for the Advancement of Teaching. Retrieved from [http://classifications.carnegiefoundation.org/descriptions/community\\_engagement.php](http://classifications.carnegiefoundation.org/descriptions/community_engagement.php)
- Christensen, C. & Eyring, H. (2011). *The Innovative University*. San Francisco: Jossey-Bass.
- Chubb, I. (2013). Australia's Chief Scientist Professor Ian Chubb, speech delivered to the AMSI Accelerature Australia Conference, Canberra.
- Coaldrake, P. & Stedman, L. (2013). *Raising the Stakes: Gambling with the Future of Universities*. St Lucia: University of Queensland Press.
- Collini, S. (2012). *What Are Universities For?* London: Penguin Books.
- Commonwealth of Australia (2009). *Powering Ideas: An Innovation Agenda for the 21st Century*. Canberra: Commonwealth of Australia.
- Commonwealth of Australia (2011a). *Research Skills for an Innovative Future: A Research Workforce Strategy to Cover the Decade to 2020 and Beyond*. Canberra: Commonwealth of Australia.
- Commonwealth of Australia (2011b). *Australian Innovation System Report*. Canberra: Commonwealth of Australia, Canberra.
- Commonwealth of Australia (2012). *Australia in the Asian Century*. Canberra: Commonwealth of Australia.
- Commonwealth of Australia (2013). *Assessing the Wider Benefits Arising from University-based Research: Discussion paper*. Canberra: Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education.
- Community–Campus Partnerships for Health. (2012). *Community IRBs and Research Review Boards: Shaping the Future of Community-engaged Research*. Seattle: Albert Einstein College of Medicine, The Bronx Health Link and Community–Campus Partnerships for Health.
- Council of Australian Postgraduate Associations. (2012). *The Research Education Experience: Investigating Higher Degrees by Research Candidates' Experiences in Australian Universities*. Canberra: Commonwealth of Australia.
- Cuthill, M. (2010). Working together: A methodological case study of engaged scholarship. *Gateways: International Journal of Community Research and Engagement*, 3: 20–37.
- Cuthill, M. (2011). Embedding engagement in an Australian 'sandstone' university: From community service to university engagement. *Metropolitan Universities*, 22(2): 21–44.
- Cuthill, M. (2012). A 'Civic Mission' for the University: Engaged Scholarship and Community-based Research, in L. McIlrath, A. Lyons. & R. Munck (Eds.). *Higher Education and Civic Engagement Comparative Perspectives*. New York, Palgrave Macmillan, pp. 81–101.
- Cuthill, M. & Brown, A. (2010). Sceptics, utilitarians and missionaries: Senior managers' perceptions of engagement in a research intensive Australian university. *Australasian Journal of University Community Engagement*, 5(2): 126–146.
- Cuthill, M., Warburton, J., Everingham, J., Petriwskyj, A. & Bartlett, H. (2011). Reflections on a multisector action research collaboration: The researchers' perspective. *Action Learning and Action Research Journal*, 17(1): 92–118.
- Davis, G. (2013). Glyn Davis on a Smarter Australia, National Press Club address. Retrieved from <http://theconversation.edu.au/national-press-club-address-glyndavis-on-a-smarter-australia-12503>.

- Deiaco, E., Hughes, A. & McKelvey, W. (2012). Universities as strategic actors in the knowledge economy. *Cambridge Journal of Economics*, 36(3): 525–541.
- Dwan, K. & McInnes, P. (2013). Increasing the influence of one's research on policy. *Australian Health Review*, 37: 94–198.
- Engagement Australia (EA). (2013). Engagement Australia submission to the draft Commonwealth paper *Assessing the wider benefits arising from university-based research: Discussion paper*. Lismore: Engagement Australia.
- Ernst & Young. (2012). *University of the Future: A Thousand Year Old Industry on the Cusp of Profound Change*. Sydney: Ernst & Young.
- European Commission. (2007). *The European Research Area: New Perspective*. Brussels: European Commission.
- European Commission (2012). *Monitoring Policy and Research Activities on Science in Society in Europe—Final Synthesis Report*. Brussels: European Commission.
- Fredman, N. & Doughney, J. (2012). Academic dissatisfaction, managerial change and neo-liberalism. *Higher Education*, 64: 41–58.
- Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P. & Trow, M. (1994). *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*. London: Sage.
- Goddard, J. (2009). *Re-inventing the Civic University*. London: National Endowment for Science, Technology and the Arts (NESTA).
- Grattan Institute. (2013). *Mapping Australian Higher Education*. Melbourne: Grattan Institute
- Group of Eight. (2013). *The role and importance of research intensive universities in the contemporary world: Discussion paper*. Canberra: Group of Eight.
- Global University Network for Innovation (GUNI). (2011). *Higher Education in the World 4: Higher Education's Commitment to Sustainability: From Understanding to Action*. Basingstoke: Palgrave, and Global University Network for Innovation.
- Hall, B. (2009). Higher education, community engagement, and the public good: Building the future of continuing education in Canada. *Canadian Journal of University Continuing Education*, 35(1): 11–23.
- Hil, R. (2012). *Whackademia: An Insider's Account of the Troubled University*. Sydney: NewSouth Publishing.
- Holland, B. (2005). *Scholarship and mission in the 21st century university: The role of engagement*. Proceedings of the Australian Universities Quality Forum 2005. Retrieved from [www.auqa.edu.au/files/publications/full\\_proceedings.pdf](http://www.auqa.edu.au/files/publications/full_proceedings.pdf).
- Hughes, A. & Mina, A. (2012). *The UK R&D Landscape*. London: CIHE and UK IRC.
- Intzesiloglou, G., Kakderi, C., Komninos, N. & Zaharis, N. (2011). *Identifying successful knowledge exchange practices between academia and industry in university-city regions: The case of Thessaloniki Greece*. Proceedings of International Conference for Entrepreneurship, Innovation and Regional Development (5–7 May) Ohrid, Macedonia.
- Jones, G. (2012). Reflections on the evolution of higher education as a field of study in Canada. *Higher Education Research & Development*, 31(5): 711–722.
- Jump, P. (2012). *Research Intelligence – Renaissance Man's Word to the Wise*. London: Times Higher Education.
- Kajner, T. (2013). Beyond the Binary: Scholarship, Engagement, and Social Transformation, in L. Shultz & T. Kajner. (Eds.), *Engaged Scholarships: The Politics of Engagement and Disengagement*. Boston: Sense Publishers.
- Kaur-Gill, S. (2012). Institutionalizing Industry and Community Engagement in Higher Education: Challenges and Recommendations Across ASEAN and Asia, in S. Kaur-Gill. & N. Gajaseeni (Eds.), *Higher Education and Community Engagement: Innovative Practices and Challenges Across ASEAN and Asia*. Selangor: Universiti Malaysia, pp. 29–47.
- Kelly, U. & McNicoll, I. (2011). *Through a Glass, Darkly: Measuring the Social Value of Universities*. Bristol: National Co-ordinating Centre for Public Engagement.
- Lund Declaration. (2009). *Europe Must Focus on the Grand Challenges of Our Time*. Final Declaration of Swedish Presidency Launch Conference, in *New Worlds—New Solutions*. Stockholm: Vinnova.
- Lynch, K., Grummell, B. & Devine, D. (2012). *New Managerialism in Education: Gender, Commercialization and Carelessness*. Basingstoke: Palgrave Macmillan.
- Mathews, K., Lodge, J. & Bosanquet, A. (2012). Early career academic perceptions attitudes and professional development activities: questioning the teaching and research gap to further academic development. *International Journal for Academic Development*, 19(2), 112–124.
- McIlrath, L. & Lyons, R. (Eds.). (2012). *Higher Education and Civic Engagement: Comparative Perspectives*. Basingstoke: Palgrave Macmillan.
- McKelvey, M. & M. Holmen. (2009). *Learning to Compete in European Universities: From Social Institutions to Knowledge Business*. Cheltenham: Edward Elgar.
- Metcalfe, J. (2013). Australian researchers held back in struggle for jobs, funding, *The Conversation Online*. Retrieved from <https://theconversation.edu.au/australian-researchers-held-back-in-struggle-for-jobs-funding-11595>.
- Miller, N. & Sabapathy, J. (2011). Open Universities: A Vision for the Public University in the Twenty-first Century, in J. Holmwood (Ed.). *A Manifesto for the Public University*. London: Bloomsbury. pp. 42–55.
- Moore, M., Hughes, A. & Ulrichsen, T. (2010). *The Higher Education Knowledge Exchange System in the United States*. Retrieved from [www.cbr.cam.ac.uk/pdf/USKESystem-FullReport.pdf](http://www.cbr.cam.ac.uk/pdf/USKESystem-FullReport.pdf).
- Nelson, B. (2002). *Higher Education at the Crossroads: An Overview*. Canberra: Department of Education, Science and Training.
- Organisation for Economic Co-operation and Development (OECD). (2013). *Institute for Management of Higher Education*. Paris: OECD. Retrieved from [www.oecd.org/edu/imhe/highereducationinregionalandcitydevelopment.htm](http://www.oecd.org/edu/imhe/highereducationinregionalandcitydevelopment.htm).
- O'Shea, É. (2014). Embedding knowledge exchange within Irish universities – International shifts towards a hybrid academic? *AISHE-J: The All Ireland Journal of Teaching and Learning in Higher Education*, 6(1): 13910–13915.
- PACEC. (2010). *Evaluation of the Effectiveness and Role of HEFEC Third Stream Funding*. Report 2009/15. Bristol: HEFCE.
- Petersen, E. (2011). Staying or going? Australian early career researchers' narratives of academic work, exit options and coping strategies. *Australian Universities' Review*, 53(2): 34–42.
- Petter, A. (2013). Weaving the Academy into the Fabric of Community: The Simon Fraser University experience. Paper presented at the 11th PASCAL International Observatory Conference. Retrieved from <http://conference.pascalobservatory.org/>.
- PhillipsKPA, (2006). *Knowledge Transfer and Australian Universities and Publicly Funded Research Agencies: A Report to the Department of Education, Science and Training*. Canberra: Department of Education, Science and Training.
- Professor X. (2011). *In the Basement of the Ivory Tower: Confessions of an Accidental Academic*. New York: Viking.
- Regional Universities Network (RUN). (2013). *Regional Universities Network Contribution to Regions and the Nation*. A proposal developed by the RUN Engagement Working Group (not publicly available).
- Schuetze, H. (2010). The Third Mission of Universities: Community Engagement and Service, in P. Inman & H. Schuetze (Eds.). *The Community Engagement and Service Mission of Universities*. Leicester: National Institute of Adult Continuing Education. pp. 13–31.
- Shergold, P. (2011). Seen but not heard. *The Australian*, 4 May.

Social Science and Humanities Research Council. (2013a). *Community Engagement*. Retrieved from [www.sshrc-crsh.gc.ca/societe-societe/community-communitie/index-eng.aspx](http://www.sshrc-crsh.gc.ca/societe-societe/community-communitie/index-eng.aspx).

Social Science and Humanities Research Council. (2013b). *Imagining Canada's Future*. Retrieved from [www.sshrc-crsh.gc.ca/societe-societe/community-communitie/Imagining\\_Canadas\\_Future-Imaginer\\_l\\_avenir\\_du\\_Canada-eng.aspx](http://www.sshrc-crsh.gc.ca/societe-societe/community-communitie/Imagining_Canadas_Future-Imaginer_l_avenir_du_Canada-eng.aspx).

Social Science and Humanities Research Council (2013c). *Knowledge Mobilization Strategy*. Retrieved from [www.sshrc-crsh.gc.ca/about-au\\_sujet/publications/KMbPI\\_FinalE.pdf](http://www.sshrc-crsh.gc.ca/about-au_sujet/publications/KMbPI_FinalE.pdf).

Social Science and Humanities Research Council. (2013d). *Engagement as a Key Priority*. Retrieved from [www.sshrc-crsh.gc.ca/societe-societe/community-communitie/Imagining\\_Canadas\\_Future-Imaginer\\_l\\_avenir\\_du\\_Canada-eng.aspx](http://www.sshrc-crsh.gc.ca/societe-societe/community-communitie/Imagining_Canadas_Future-Imaginer_l_avenir_du_Canada-eng.aspx).

Talloires Network. (2005). *Talloires Declaration on the Civic Roles and Social Responsibilities of Higher Education*. Retrieved from <http://talloiresnetwork.tufts.edu/what-is-the-talloires-network/talloires-declaration/>.

Universities Australia. (2013). *An Agenda for Australian Higher Education 2013–2016*. Canberra: Universities Australia.

Varga, A. (Ed.) (2009). *Universities, Knowledge Transfer and Regional Development: Geography, Entrepreneurship and Policy*. (New Horizons in Regional Science series). Cheltenham: Edward Elgar.

Vitae. (2011). *Vitae Researcher Development Framework*. Retrieved from [www.vitae.ac.uk/researchers/428241/Vitae-Researcher-Development-Framework.html](http://www.vitae.ac.uk/researchers/428241/Vitae-Researcher-Development-Framework.html).

Watermeyer, R. (2011). Challenge for university engagement in the UK: Towards a public academe? *Higher Education Quarterly*, 65(4): 386–410.

Watson, D., Hollister, R., Stroud, S. & Babcock, E. (2013). *The Engaged University: International Perspectives on Civic Engagement*. London: Routledge.

Wiseman, J. (2010). *Dancing with Strangers: Understanding the parallel universes of academic researchers and public sector policy makers*. Occasional Paper 11, Australia and New Zealand School of Government and the State Services Authority of Victoria.