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IMPROVING COLLABORATION AND INNOVATION BETWEEN INDUSTRY AND BUSINESS SCHOOLS IN AUSTRALIA

edited by James Guthrie, Elaine Evans and Roger Burritt

RMIT UNIVERSITY

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Preface

What value could be realised if universities and industry collaborated? This is the question discussed at the Chartered Accountants Australia and New Zealand Thought Leadership Forum, held in conjunction with RMIT University in Melbourne in February 2017. The Forum is the launching pad for this eighth volume of the *Academic Leadership Series*, which continues the Forum discussions and debates. The aim of the Series is to challenge our preconceived ideas about contemporary issues. Given that stereotypes about the seemingly different worlds of the university and industry abound, the articles in this issue are very timely.

Facing disruption from every direction we are constantly urged to be innovative. Research shows that Australia and New Zealand are lagging behind in the innovation stakes and developing relationships between universities and industry has significant potential to create meaningful change. The articles in this volume provide a range of insights into the boundaries that prevent universities and industry working together and how these can be overcome. They make for thought-provoking reading.

As a professional body, Chartered Accountants Australia and New Zealand has a major role to play in making change happen. Breaking down barriers and building relationships are, after all, what our professional body is all about. We are proud to be leaders in confronting the challenges that lie ahead for our profession and for society more widely. It is through leadership activities such as the Forum and this Series that we can develop a platform from which to make a contribution to this important issue of public interest that has an impact on the economy and the community.

I'd like to acknowledge everyone involved in making the Forum and this publication such a success. The collaborative spirit of these activities is a shining example of what collaboration can and does achieve.

Jeana Abbott
Head of Education,
Chartered Accountants Australia and New Zealand

Preface

This eighth volume in the *Academic Leadership Series* contains an array of thoughtful and interesting contributions on the virtues and necessity of improving collaboration and innovation between commerce and business researchers, including researchers in accounting.

These contributions stem from the 2017 Chartered Accountants Australia and New Zealand Thought Leadership Forum held at RMIT University, which was proudly supported by the School of Accounting. Through the Forum, and subsequent publication of this volume, the importance of enhancing engagement and related innovation between business researchers and national and international commerce is put under the spotlight.

There may be many accounting researchers who believe they have a good relationship with their professional accounting association(s) as members, and who consider applying for the available competitive research grants available each year from such bodies as a key part of their partnering with commerce. However, this would also be a narrow view of the opportunities available to collaborate productively with business, and of the potential reach and significance of quality research in a globalising world where 'prizes' are awarded for innovation and the adoption of an interdisciplinary orientation to answering big questions and solving wicked problems.

Accounting researchers, therefore, are encouraged to reach out to business in developing research topics and agendas, placing less reliance on traditional accounting profession sources for research income, which remain gratefully accepted and acknowledged. We, in the accounting profession, therefore, have much to gain by lifting our focus, broadening our experience, and from meeting new 'friends', both in national and international commerce, and among the broader business research community, as well as within non-business disciplines for greater interdisciplinarity.

It is trusted that the contributions featured in this volume, based on the presentations made at the Forum, will generate discussion and debate and, in the process, stimulate fresh ideas, distinctive research projects, and generate new and enhanced collaborations and further innovation.

Finally, I note that this volume is the third in the *Academic Leadership Series* that is part of the collaboration between RMIT University and Chartered Accountants Australia and New Zealand. RMIT University looks forward to this thought leadership partnership continuing in 2018, with the aim of opening up discussion and debate on issues of significance within the economy and society.

Professor Garry Carnegie
Head, School of Accounting
RMIT University

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Expanding Collaboration Between Industry and Business Faculties in Australia

ROGER BURRITT, JAMES GUTHRIE, ELAINE EVANS AND KATHERINE CHRIST

Exploration of improving collaboration and innovation between industry and business schools in Australia is the product of the 8th Chartered Accountants Australia and New Zealand Thought Leadership Forum held in collaboration with RMIT University in Melbourne. Improving collaboration between industry and university business researchers is a key to economic and social development in Australia.

The focus of the Forum was to understand how to promote collaboration between business faculties in universities and the worlds of commerce and government in increasingly complex and uncertain times. The next decade will be marked by both immense disruption to the Australian and New Zealand economies and the need for rapid transformation. For successful adaptation, corporate and public sectors will both have to be active players, with some taking a leading role in the development of the knowledge economy – this requires the use of our most valuable asset, the knowledge and capabilities of our current and future researchers and workers.

The hot topic is innovation and collaboration, which affect academics and practitioners alike. If we are to take advantage of opportunities, moderate potential damage, drive change and cope with its consequences then a proactive approach to working together is critical. A Joint Select Committee on Trade and Investment Growth *Inquiry into Australia's Future in Research and Innovation* (Commonwealth of Australia, 2016) found that within the OECD, Australia performs relatively poorly in university–business collaboration and in commercialising research and innovation, being amongst the lowest ranked.

In Australia, higher education invests billions of dollars in research infrastructure and the workforce of skilled and knowledgeable academics. Business faculties in Australia are significant within universities. They graduate one-in-three university students (corresponding to over 100,000 graduates annually) and three-in-five international university students, contributing significantly to Australia's largest export service industry. Although they undertake research and introduce innovations regarding management, finance, technology and other business disciplines, numerous groups say much is disconnected from the challenges facing industry and the public sector. It is not surprising that a key recommendation of the Inquiry was that the Department of Education and Training review overseas models of university–business collaboration with a view to identifying strategies that could be introduced in Australia.

As discussed at the Forum, to ensure innovation our focus must be engagement with each other in research and a greater impact on practice. Although government policy is now moving towards looking at the impact of research, ironically not one business discipline is included in the recently announced impact pilot study, despite having 60% of students in Australia and about half the academics. Given what Education Minister Simon Birmingham calls the '"appalling" reputation internationally for collaboration between industry and higher education researchers'[1] in

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1. https://ministers.education.gov.au/birmingham/fast-tracking-nsw-and-queensland-project-funding-industry-research-collaboration

Australia and the absence of business discipline input into the Australian Research Council's Engagement and Impact Assessment pilot stage, it is valuable to open discussion about how collaboration can be improved.

Prior discussion was encouraged and explored at the Chartered Accountants Australia and New Zealand Accounting Frontiers Forum 'Expanding collaboration between universities and industry in Australia and New Zealand', held on 12 December 2016. Also, the Australian Business Deans Council's response to the Australian Research Council (ARC) and Department of Education and Training's (2016) *Engagement and Impact Assessment Consultation Paper,* by Professor Stephen Taylor, UTS, explained how engagement covers a huge range of activities and looks different from the perspective of each discipline.

Accounting and business research projects are notable for their failure to win government funds. The ARC's statistics for its Linkage Scheme show that, setting aside a small increase between 2006 and 2009, successful applications declined from about 45% in 2003 to just over 30% in 2016.[2] Accounting academics seem lucky to get one award a year. In 2016, 500 applications were rejected. To combat criticism of high failure rates and the lack of take up of industry funds committed if applications are successful the Government has begun to fast-track industry–university research grant applications. Nonetheless, without appropriate current levels of Government Linkage funding, academics will need to look more directly to industry for support both in cash and more importantly in kind, even though historically Australian businesses are not known for strong philanthropic foundations.

The perceived 'gap' between academic research and practice has been of concern to various parties for decades. This is particularly the case in disciplines such as management and accounting. Notwithstanding this concern, evidence suggests the gap has continued to grow, leading many to question whether it can be closed, whether such action is, in fact, desirable, and how a closer relationship between academics and practitioners can best be cultivated.

AUSTRALIAN CONTEMPORARY CONTEXT

Currently, in Australia, there are 34 named university business schools, although there are more faculties of business (and law/economics, etc.) that are either integrated into a business school or stand alone as a faculty (e.g., Macquarie University has both a Faculty of Business and Economics and Macquarie Graduate School of Management). While many of these universities employ adjunct lecturing staff with current or past links to industry, the majority of the academics are full-time continuing or on a contract, and are expected to divide their time between teaching and research. Depending on the university, business schools usually have the highest student numbers and staff–student ratios are typically greater than in other faculties/schools in the university. The universities', and indeed the Commonwealth Government's, expectation in relation to research is outlined in the Excellence in Research for Australia (ERA) evaluation framework. Targets for schools/faculties and disciplines within those schools/faculties/disciplines include research outputs, research funding and applied measures – these do not appear to consider heavy teaching loads in business schools.

For business schools, funding can come from the Commonwealth Government, state and local governments, industry and commerce, professional associations, not-for-profit organisations, international agencies, individual bequests, and so on. The list of potential research funders is long, with the crucial success factor for business schools being that the output of the research has to add value to the funding organisation and have wider economic and social benefits. In 2002 there were 44 university–business-industry ARC Linkage Projects funded by the Commonwealth Government under the category of 'Business'. This number increased slightly to 46 in 2016. In contrast, in 2002 there were five university–industry Linkage Projects funded by the Commonwealth Government under the category of 'Accounting', with the number decreasing to one in 2016. In a media release on 5 April 2017, the ARC Acting Chief Executive Officer stated that 'A crucial part of the Linkage Projects scheme is collaboration, and these three projects involve significant partnerships between

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2. http://www.arc.gov.au/news-media/media-releases/linkage-projects-new-industry-research-collaboration

higher education researchers and other parts of the national innovation system, including industry – with matching cash and in-kind contributions provided by their Partner Organisations'.[3] Such is the importance of industry–university partnerships and collaborations that, from 1 July 2016, the ARC started to accept funding applications under the Linkage Projects scheme on a continuous basis. This new process is in contrast to the one round per year approach that had prevailed for a long time.

From the data available from the ARC, it can be surmised that there are either few 'worthy' applications from business schools and/or the success rate is low vis-à-vis other disciplines such as science and technology. Where does this leave business schools, which are under pressure from Deans to apply for Commonwealth Government research funding through the Linkage Project scheme? Many business schools have noted their lack of success in the scheme and have turned to other sources of finance. A recent comment from an academic at a business school indicated that his institution had to do a lot of 'door knocking' to ask for research funds. Sometimes the problem is the mismatch between academics' research interests and skills and the problems that face industry and commerce. A further problem is that universities are often not the first place that industry, commerce and governments turn to for research. In the past, research institutes were where knowledge was created, stored and shared. A recent report from Ernst & Young (2012, p. 7) notes that at research institutes such as universities

> The staff working in those domains typically held a privileged status as originators and keepers of knowledge. Now, knowledge is open to anyone globally with a device and connectivity – not just facts and figures, but also analysis, interpretation, and curation of knowledge.

Further, statements by the Federal Education Minister signal that Government funding cuts to universities will continue both now and into the future (e.g., 2% the so-called efficiency dividend). Universities in Australia will need to prepare for a context in which public funding is contestable, and any growth in research funding comes from non-government sources – industry, philanthropists and global collaborations – which are fiercely competitive. Recently, in *The Conversation*, Coaldrake and Stedman (2017) stated that

> … despite increases in grant funds far outstripping growth in the academic population, demand for research grants has far exceeded supply, with success rates for grant applications falling to record lows. This has come about partly because more funds have been concentrated on the most successful applicants, and proposals to extend the duration of project funding would exacerbate this.

If the lack of success of business researchers in the Commonwealth Government's Linkage Project scheme is indicative of the future of government funding for industry–university research initiatives, then business schools must put more time and effort into seeking opportunities to partner with industry. For business schools to survive and thrive, they will need to build significantly deeper relationships with industry in the coming decade. According to the Ernst & Young (2012) report, research commercialisation will go from being a fringe activity to being a core source of funding for many universities' research programs. This is confirmed by Michalak et al. (2017), who state that 'More recently, in addition to research and education, a third "mission" of universities has emerged, which includes cooperation with business and other stakeholders towards the commercialization of research results'.

The drivers of change for business schools have come from the heightened stakes attached to external research funding for individual academics and institutions (Coaldrake and Stedman, 2017). The 'heightened stakes for individual academics' are discussed in recent studies by Martin-Sardesai et al. (forthcoming), who provide a 30-year history of government expectations about research and performance measurement of universities. The current ERA requirements of research outputs, research funding, and applied measures have been 'converted' into systems to measure academic performance for probation, salary loading and promotion.

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3. http://www.arc.gov.au/news-media/media-releases/linkage-projects-new-industry-research-collaboration

Of interest to business schools are the requirements of ERA in the future. ERA 2018 will include engagement and impact assessment as a companion to the traditional exercise of research outputs and research funding. While ERA will continue to assess research quality, it will also assess research interactions with government, non-government organisations, industry and community organisations. Further, it will evaluate research contributions to the economy, society and environment.

Institutions should be aware of the new research funding under the National Innovation and Science Agenda that began on 1 January 2017. The Commonwealth Government is placing emphasis on collaboration with industry, encouraging joint endeavours that produce outcomes with commercial and community benefits. The new arrangements for universities will broadly balance success in industry and other end-user engagement with research quality. While research income from competitive grants will determine research funding, engagement will be measured by research income from industry and other end-users, thus increasing incentives for collaborative projects.

Recently, the Business Academic Research Directors' Network (BARDsNet) appointed its inaugural Research Scholar. The purpose of the new role is to expand collaboration across business schools and key stakeholders and to improve the connections between the needs of business and government and business school research. The appointment will support the purpose of BARDsNet in 'enhancing the research capacities of business faculties and schools through identifying and implementing new strategies'.[4] These are noble aspirations set in the context of reduced funding for universities from government and increased competition from overseas institutions that threaten the universities' monopoly in the field of knowledge generation and dissemination.

In summary, the brave new world of intensified research collaboration between universities and business presents many challenges for business schools. The recent *Inquiry into Australia's Future in Research and Innovation* (Commonwealth of Australia, 2016) identified collaboration to increase the level of engagement between businesses, universities and the research sector to commercialise ideas and solve problems as a key area. How business schools respond to this may determine their survival as research institutes and not just teaching institutes. The call for collaboration is not new, and over the years academics have engaged in debates over whether research collaboration is a goal worth pursuing. The following section discusses the relevance of engaging with practice, from various perspectives.

ACADEMIC DEBATES CONCERNING COLLABORATION

Research and innovation, aided by academia, may help to improve the practical competitiveness of companies and may contribute to an increased standard of living in society (Walker et al., 2008; Hughes et al., 2008). On the face of it, collaboration in high-performance academic–practitioner research teams can lead to the greater certainty that such potential outcomes are achieved (Walker et al., 2008), but the process is controversial and complex (Tranfield and Starkey, 1998; Bartunek and Rynes, 2014).

Different opinions continue to exist about whether collaborations between commerce and business researchers are necessary and, if adopted, how their effectiveness can be improved. Debates within business schools over the need for collaborations and how to make them more effective, remain active in several disciplines. These include general management (Tranfield and Starkey, 1998; Kieser and Leiner, 2009; Bartunek and Rynes, 2014), strategic management (Hughes et al., 2008), project management (Walker et al., 2008), marketing (Brennan, 2004), information systems (Mathiassen, 2002) and management accounting (Adams and Larrinaga-González, 2007; Tucker and Parker, 2014; Tucker and Schaltegger, 2016).

Over the years there has been considerable discussion about the potential for establishing or extending links between practitioners and academic research. There is a widely recognised gap, if not a chasm, between academic researchers and practitioners that needs to be bridged if the fruits of innovation are to be secured.

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4. http://www.abdc.edu.au/pages/business-academic-research-directors-network.html

Collaboration is viewed as one means by which to bridge this gap, hence, as a basis for predicting the future this section examines two fundamental issues: first, views about whether collaboration between practitioners and academics is desirable; and, second, the current role of professional associations in spanning the boundary between scholars and practitioners.

To address the first fundamental issue we ask the question: Is research collaboration a goal worth pursuing? Collaboration is 'the coming together of diverse interests and people to achieve a common purpose via interactions, information sharing, and coordination of activities' (Jassawalla and Sashittal, 1998, p. 239). Unless there is some perceived value to the individuals and groups involved – some 'value proposition' – there would seem to be little point engaging in collaborations or seeking improvements in collaborative arrangements to advance knowledge and reap the benefits of innovation (Walker et al., 2008). That academics and practitioners have common aims is of critical importance. Each is considered briefly.

From an academic perspective, the value of collaboration depends on their mode of thinking about the purpose and processes of research. Two main views currently are to the fore: 'Mode 1' and 'Mode 2'. Mode 1 and Mode 2 are presented as two alternative approaches to knowledge production and the innovations that might stem from these. The two modes involve different perspectives about the relevance of engaging with practice.

Mode 1 knowledge production comes from basic research using a rigorous scientific method where disciplinary questions are raised, hypotheses generated and tested against evidence, and application of findings is left to others including policy makers and practitioners (Gibbons et al., 1994). Academics are the gatekeepers of this knowledge, which resides in the universities, and privileges theory at the expense of practice (Tranfield and Starkey, 1998). While such basic research is closely related to the pursuit of academic excellence in terms of rigour, its relevance to practice is left to others to decide (Bartunek and Rynes, 2014).

In contrast, Mode 2 is

> ... characterized by research problems framed in the context of application (rather than theory or previous literature), as transdisciplinary (as opposed to single-discipline thinking), as including diffusion of implications for practice based on findings occurring in the process of research, as involving teams of researchers that include both academics and practitioners with mixed skills and experience, and as a more socially and politically accountable knowledge production process and output (Bartunek and Rynes, 2014, p. 1187).

Knowledge is produced in the context of application and use, and a framework of action (MacLean et al., 2002). Mode 2 knowledge is generally viewed as both rigorous and relevant to practice (Bartunek and Rynes, 2014).

In contrast with academic Mode 1 (basic) and Mode 2 (applied) views of knowledge production through research, the question arises of whether practitioners see much value in research collaborations with academics. Mode 2 is based on transdisciplinary foundations for knowledge production whereby academic and practitioner skills are jointly mainstreamed in the research process (Adams and Larrinaga-González, 2007). Nevertheless, evidence indicates first, that, in general, even where academics do include recommendations in their publications, these are vague and difficult to implement in practice (Bartunek, 2007). Second, practitioners rarely use academic work and instead draw upon a wide range of knowledge sources for their decision making, including popular management ideas (Lamertz and Baum, 1998), reducing their incentives to engage in collaborations.

There being no closure on the question of the gap between academics and practitioners, studies continue to be published. Some studies based on Mode 1 linear scientific thinking (discovery, translation, dissemination, change) concentrate on examining problems with the diffusion of knowledge from academics to practice (Tucker and Parker, 2014; Tucker and Schaltegger, 2016). Mode 2 thinkers

shun this approach in favour of recognising that the conditions under which knowledge is produced are dynamic, complex and interactive between the academic and practitioner participants (Knights and Scarbrough, 2010).

One main reason for the ongoing disparagement of Mode 1 knowledge production is that, as Gibbons et al. (1994) suggested over 20 years ago, and which is even more relevant today, information and communication technology (ICT) developments now render knowledge almost universally available. Knowledge, once available, no longer has to reside in the hands of institutions such as universities, or under the control of professional associations, the very existence of which depends on a monopoly over knowledge dissemination. Indeed, developments in ICT present a considerable problem for the future of business-based professions such as accounting, which rely on maintaining a monopoly over its knowledge base while competing with other professions (e.g., engineering) vying for access to accounting knowledge to build up their own member bases as new digital technology breaks down the borders of knowledge dissemination (Burritt et al., 2016).

Given these uncertainties about the value of collaborations, it is useful to consider the role of professional associations in academic–practitioner research connections. To address this second fundamental issue we ask the question: What is the current role of professional associations in spanning the boundary between scholars and practitioners?

At the beginning of the century evidence about Mode 2 collaborations with close engagement between academics and practitioners was actively sought but a generally poor level of engagement was identified (Hughes et al., 2008).

The rationale for this state has produced the criticism that Mode 2 rigorous and relevant research is not possible and reverts to Mode 1 knowledge production based on scientific inquiry (Kieser and Leiner, 2009). The argument is that Mode 2 research is beholden to the norms of scientific inquiry and academia: 'Applied science has to orient its research towards the applicator (the university) system's values, norms and interests' (Nicolai, 2004, p. 525). Kieser and Leiner (2009, p. 516) contend that 'On the basis of

our analysis we show that neither action research nor Mode 2 research nor recent approaches to collaborative research can succeed in producing research that is rigorous as well as relevant'. In these circumstances, it is small wonder few applications of Mode 2 research appear, as the focus is on knowledge production performed outside, and beyond the direct control of, universities, extending into the political, economic and societal spheres (Nowotny et al., 2001; Kieser and Leiner, 2009, p. 524).

Hughes et al. (2008) acknowledge this issue and recognise that research collaboration between practitioners and academics does not happen of its own volition and needs to be actively managed to secure benefits. Such management could be organised directly by academics, directly by practitioners, directly through joint management arrangements, or indirectly by professional associations, which keep one eye on the impact on society and another on the interests of their members.

Taking the accounting discipline as an example, collaborations might involve all three parts of the accounting profession – academics, practitioners and policy makers – including professional associations acting as mediators between academia and practice (Laughlin, 2011). The role of professional associations, such as Chartered Accountants Australia and New Zealand and CPA Australia, in bringing academics and practitioners into collaborations, has so far received little consideration. Tucker and Lowe (2014) interviewed 19 representatives of the four main professional accounting bodies in Australia about the gap between academic research and practice in management accounting and found it was not of great concern to the professional associations. Nevertheless, they identified the important mediating role of professional associations between academics and practitioners where the associations are encouraging academic research through academic and practitioner oversight of research grants, admittedly small in value and number, but critical to academic promotion prospects, facilitating academic access to practitioners and practices as subjects of and partners in research, supporting academic research through bodies such as the Accounting and Finance Association of Australia and New Zealand (AFAANZ), which have

practitioner involvement, and providing thought leadership by bringing academics and practitioners together to engage in dialogue on critical issues facing the profession.

Professional associations can perform the vital role of boundary spanners between academics and practitioners, who might otherwise settle into their own academic and practitioner communities across a divide (Gulati, 2007). Boundary spanners are '... people who do not identify themselves fully with either the academic or practitioner community and who have the courage and the interest to treat both groups as of value and as having something to contribute to the other' (Bartunek, 2007, p. 1329).

Forums, such as the annual Chartered Accountants Australia and New Zealand Thought Leadership Forum, provide a collaborative boundary spanning activity during which the implications of academic writing for practice and topics perceived relevant can be discussed and regularised. All parties 'enter into each others' worlds without needing to cast their own worlds aside' (Bartunek, 2007, p. 1330). Such settings provide scope for trying through mutual interest to reconcile the type of research output that is viewed by academics as being of the highest quality with the kind of research that might be regarded by practitioners as being of the least interest (Brennan, 2004, p. 495).

Forums successfully transgress the boundaries between universities and business (Knights and Scarbrough, 2010), and look to adopt Mode 2 research by moving towards consideration of practitioner-related problems and their interaction with applied research, rather than developing an understanding of basic research. As Mohrman et al. (2001, p. 360), suggest '..."joint interpretation forums" provide the institutional frame for collaborative research. These are forums "in which individuals can portray their own views of a situation, self-reflect, collectively reexamine, and come away with altered and enhanced interpretations and perspectives"...'.

SUMMARIES

The aim of the 2017 Thought Leadership Forum was to explore the contemporary issue 'Improving collaboration between industry and university business researchers is key to economic and social development in Australia'. This was the eighth Chartered Accountants Australia and New Zealand Thought Leadership Forum. It was held in collaboration with RMIT University in Melbourne and the topic provoked robust discussion amongst the more than 100 participants at the Forum, including the presenters and authors of the papers briefly discussed below. Each of the papers in this collection extends our thinking on how to improve collaboration and innovation between industry and business schools in the Australian context.

The papers are presented under the following three themes.

A: The wider context

B: Industry, practice and university collaborations

C: Specific challenges and opportunities

PART A: THE WIDER CONTEXT

Ross Dawson is globally recognised as a leading futurist, keynote speaker, entrepreneur and authority on business strategy. In his 2017 paper 'The Value of Collaboration', Dawson poses the important question: What is the value of academic–business collaboration? He indicates that the current landscape in Australia suggests there is much potential value that is not being realised, which begs the questions 'What is possible?' and 'What value can be created through utilising the wealth of resources we have in the academic–business sector for the benefit of the business community and society more broadly?'

Dawson answers these important questions by exploring the true value of collaboration as a source of new ideas – collaboration is where innovation comes from. Collaboration makes connections between things that already exist and can be brought together. He identifies that in a rapid changing world of business, the issue of value creation is collaborative:

> Increasingly value creation in the business sector does not happen only within organisations, but also across business ecosystems. This is at the heart of how business works today, where organisations collaborate with their partners, customers, suppliers and other organisations. Business, unlike universities, is one of the most transdisciplinary domains. However, just as

academics may be characterised as looking down at business from their ivory towers, a business may also be perceived as thinking of academia as far removed from the reality of the world in which people "get their hands dirty". (Dawson, 2017, p. 32).

He highlights that, at present, only a small proportion of Australian businesses say they source innovation through universities. This suggests that, in general, business does not even think to involve Australian universities in innovation – in other words, there is little interconnectedness. However, he does indicate there could be a bright future for universities and business in transcending boundaries between organisations – between sectors, between silos. There are several challenges to developing an ecosystem in which the academic world and the business community not only co-exist but actively collaborate (see, Stokes, 2017).

For universities and industry to develop a stronger relationship, it is important to recognise that collaboration is a capability and needs to be managed (Brewer, 2017). Dawson (2017) indicates this starts with a mindset, a way of thinking, and is supported by skills, processes and structures. These should be core capabilities that are a focus for business schools. These capabilities could range through the technological aspects of how to expose information, the processes for trust building and how to understand the management and financial issues around effective business collaboration. For instance, some important questions can be posed and answered: What are the processes; what are the structures; what is the mindset; how can we teach this; how can we model this; how can we understand the collaboration capabilities that can be applied to businesses, to other faculties in the university, to the students and the people we work with?

Also, he indicates the importance of 'boundary spanners', not only of individuals but also organisations, such as business schools. According to Dawson, (2017, p. 38):

> Business faculties have the potential and the possibility to play with the boundaries between organisations; between domains of study; between capabilities today. And in moving to that space, the question is: Who is going to

lead on that path; is it going to be the business faculties; is it going to be the startups; is it going to be the people in large businesses? In my view, businesses are not going to take the lead because they do not see the value that lies within, so leadership must start with universities.

Dawson concludes by observing that there are certain challenges to developing a more meaningful and effective academic–business collaboration. While it is important to acknowledge and understand them, it is also critical that we recognise they can be overcome which is the main focus of the Forum and this Series.

Dr Katherine Christ from the University of South Australia has research interests in environmental management accounting, water accounting and sustainability in the global wine industry. Professor Roger Burritt has researched and published widely in environmental and sustainability accounting and is associated with the Australian National University. Christ and Burritt (2017) provide a major review of the academic literature on the divide between accounting research and practice and pose a number of important strategies for enhancing collaboration in the paper 'Academic Reflections on the Accounting Researcher-Practitioner Gap: The Way Forward for Enhanced Collaboration'. They note there is evidence that the academic–practitioner gap continues to grow and therefore pose the research question: What is the way forward for enhancing collaboration between academic researchers and practitioners? This is the main focus of their paper, and in addressing this research question, they consider four sub-questions. What is this gap? Can it be closed? Is that, in fact, desirable? Can a closer collaborative relationship between academics and practitioners be cultivated?

Their paper examines existing academic evidence about the gap. The authors then discuss how, given current policy encouragement and support, can collaboration between the parties be improved. They address the main challenges and barriers to effective collaboration before exploring the potential of Industry 4.0, a global revolution in information technology and interconnectivity as an example of such a complex topic suitable for investigation and improvement of academic–practitioner collaboration. Finally, they conclude, noting that there are various avenues

available to achieve better collaboration to reduce the academic–practitioner gap and enhance both innovation and economic performance.

Christ and Burritt (2017, p. 41) state that,

> notwithstanding the differences between academic research and practice, disagreement exists between those within the academic community concerning what accounting research should be and the role it should fulfil. There are two schools of academic thought. The first includes those who believe research should exist 'outside' of practice. From this perspective, it is the role of academics to theorise about the world they live in while remaining apart from it. The second school concerns applied research and involves those who seek to intervene in organisations and society to make useful contributions to their practical field of interest.

The authors search the academic literature to explore avenues to improve collaboration. For the research and practice agenda to move forward with a view to mutual benefit and development of knowledge, they identify a number of avenues and discuss in full how these can be achieved, including mutual commitment and involvement, organisational environment, the need to embrace transdisciplinarity, flexibility and communication.

Christ and Burritt (2017, p. 47) summarise the research and indicate that it is in academia where the biggest changes will be required. Those with a penchant for basic research divorced from practice will need to communicate better with applied researchers, and applied researchers will need to broaden their skills to welcome practitioner thinking and potential holistic involvement in research.

Within the Australian context, Deans and other senior university managers will need to revise the overbearing incentive systems currently in place for academics. They acknowledge greater opportunity for collaboration is in cutting-edge topics such as Industry 4.0, where the three parties can learn together through academic-to-academic, and academic-to-practitioner relationships as a catalyst for securing the benefits of research collaborations.

In summary, overcoming the challenges of lack of leadership in addressing complex and uncertain real-world problems, different time horizons, the absence of academic social skills for transdisciplinary teamwork, unintended consequences of academic performance systems and communication problems identified in their paper will not be easy.

PART B: INDUSTRY, PRACTICE AND UNIVERSITY COLLABORATIONS

Professor Christian Nielsen is the Director of the Business Model Design Centre, Aalborg University Denmark and his paper, 'A Personal Reflection: European Experiences on Value Exchange in University–Industry Collaborations' poses two key questions: How can academics engage with companies? And how can they make sure companies get value from collaborating with academics? He explores these two questions from a European perspective and provides several practical examples of university–industry collaboration and student activities.

His paper presents a personal reflection on how academics can engage with companies and how companies get value from collaborating with academics. The discussions are based on insights he has developed through his experiences with the Business Model Design Centre at Aalborg University over the last six years. Such experiences – and the various published research project undertaken at Aalborg – suggest that we need balanced measures for academic incentives, and also to reflect on the value propositions towards the companies with whom we engage in university–industry collaborations.

Nielsen explores recent European research into university–industry collaboration under the auspices of the European Commission (EC) and highlights ten key findings concerning the importance of university–industry collaboration, as well as barriers and enablers to the successful implementation of these. He concludes that university–industry collaboration is a crucial activity in the development of knowledge economies and societies.

Nielsen finds that EC and other research highlights that lack of funding and excess bureaucracy are the greatest barriers to university–industry collaboration,

but that removal of obstacles does not necessarily lead to successful university–industry relationships. This may be because of a lack of incentives for academics and a failure to recognise that mutual trust and commitment are the most important drivers of university–industry collaboration for both academics and companies. His paper outlines three key messages that are the fundamental principles of university–industry collaboration.

Message 1: Make sure you measure both process success and outcome success

Message 2: Create proper incentives for academics

Message 3: Researchers need to make sure companies get return on investment for their time.

He identifies several important themes to support the innovation processes of enterprises that business faculty can address as part of their research in accounting, finance and marketing, and in business broadly. There are different phases that companies need to go through in the development of ideas towards minimal viable products and to making the first sales. Business academics can help businesses structure the decision making around these phases.

Like Dawson (2017), Nielsen states that personal relationships and mutual trust are important drivers of university–industry collaboration. The question is, however, how can we go about building trust and better collaboration?

Take, for example, the important issue of academic incentives. To create incentives for academics to develop university–industry collaboration, it is important that universities develop different performance measurement systems and measures, for example, impact on business policy making, innovative teaching, collaboration and engagement. While the ability to challenge and change companies is not easy to measure, it is possible to create narratives around these elements. For Nielsen (2017, p. 57), in order to make meaningful change, universities need to reward academics for the time spent in developing collaborations with industry.

Nielsen (2017, p. 61) in his conclusions states that:

> We need to revamp academics' incentives to encourage more academics to engage in university–industry collaboration. We also need to educate academics on how to work with companies. Finally, we need to turn this company interaction into a resource by contemplating how to create reciprocal value creation between all the potential stakeholders. Then we will have genuine, meaningful university–industry collaboration.

His European perspective is shared by many of the other contributors to this series in terms of the Australian context.

Tim Fawcett (2017) in the next paper, 'Initiatives for Transitions: Opportunities and Initiatives for 2020 and Beyond', provides a company perspective to the debate about collaboration between industry and universities. The company he works for, Cisco Australia Pty Ltd, has recognised the need to help support several economic, social and political challenges that Australia and New Zealand face. With this in mind, he outlines Cisco's plans to support the transition to a digital economy. The plan focuses on three pillars: human capital, or skills, in particular STEM skills; healthy community, that is, the way people are using the internet and technologies to improve their lives; and what Cisco calls the 'innovation economy', which relates to their digital capability-building investments and interest in new jobs and new wealth creation using digital platforms.

He argues that there have been discussions about job displacement as a result of technology advances such as robots and artificial intelligence and the role of globalisation in accelerating the decline of manufacturing jobs (while seeming to undervalue the transition to services industry jobs). There have been attempts to identify the industries and jobs of the future and to try to work back from a future point to determine where we need to invest our limited public and private sector resources. This focus on jobs for the future is important to work, something Chartered Accountants Australia and New Zealand have previously focused on, and this debate is becoming increasingly important.

Fawcett (2017, pp. 63–64) argues that this new agenda will require 'a new social contract'. When we think about collaboration to drive innovation, productivity, economic growth, job creation, new businesses and wealth creation, we will need a new way of thinking. Traditional social contracts and institutions no longer meet the requirements of modern economies. The notion of a new social contract – or a 'social licence to operate' – is important.

With few exceptions, the biggest barrier Fawcett sees in collaboration between the higher education sector and corporate Australia is the issue of trust. We don't really know each other well because we don't interact – there's no structured way to interact, or it is informal, or ad hoc – and therefore we fall into stereotypes. And if it's hard to trust each other, then collaboration will be impossible.

How can we build trust if we don't have structured processes? There are plenty of examples where relationships have been established, where trust can be established, and where it works extremely well.

Fawcett provides eight cases of Cisco's collaboration with the higher education sector to highlight how this might happen in the wider collaboration between industry and universities in Australia and New Zealand. From this analysis, he identifies a number of lessons learned from these various case studies. They are as follows: Start from a position of 'Yes'. Leaders need to be engaged. The worker bees must be empowered to drive the result. Find ways to build trust. Invite speakers. Don't undervalue or overvalue brands. Think outside the square.

In his conclusion, he identifies a number of key barriers to collaboration – including a lack of trust – and actual collaboration which has brought about change, and highlights examples of where collaboration between academia and business is working. This is a fundamental issue of vital importance to Australia and New Zealand from both an economic and social perspective.

In her paper 'Creating a University–Industry Collaboration Framework into the Future (Leung, 2017) Professor Philomena Leung, Associate Dean Macquarie University, International and Corporate Engagement, synthesises ideas presented by the over 100 participants present at the Forum and

discussed during the open panel session. The stated purpose of the panel was to focus on improving collaboration and innovation between commerce and business researchers. The session was moderated by Philomena Leung, and included Associate Professor Elaine Evans, Department of Accounting and Governance, Macquarie University, Dr Roger Burritt, Honorary Professor, Fenner School of Environment and Society, The Australian National University, Professor Alan Lowe, School of Accounting, RMIT, and Professor Millicent Cheng, incoming Australian President, AFAANZ.

Leung's (2017) article analyses the input and insights of the open session and offers a framework for university-industry collaboration that addresses the present Australian context and future needs of the accounting profession and academe. The article draws upon the issues raised at the Forum, with a view to consolidating a framework into the future for collaboration, research and the management of academic matters for universities and industry.

Leung (2017) highlights, in particular, the issue of innovation and boundary spanners, and the measurement of the quality of academic impacts. Citing a 2016 Australian Government report, Leung (2017) highlights that Australia has one of the lowest rates of collaboration between universities and industry in the world. Universities have, for a long time, been able to capture some of the knowledge that goes with innovation, which they should be able to feed back into practice over time. However, this feedback, the knowledge-development loop described by Dawson (2017), is lacking in Australia. Hence the need for what Dawson (2017) and Christ and Burritt (2017) term 'boundary spanners', which are a key to innovation.

In the accounting world, professional bodies like Chartered Accountants Australia and New Zealand can be seen as boundary spanners, mediators between academics and practitioners. Laughlin (2011) argues that professional organisations have an important role in bridging the gaps between academics, policy makers and practitioners. Sometimes boundary spanning mediators are governments, but professional associations are really critical in providing academic research grants and a range of networking activities in which practitioners and scholars meet, be they academic–practitioner

seminar series or other opportunities. In operating as boundary spanners, professional associations act in the public interest (Stokes, 2017). Similarly, AFAANZ represents accounting and finance academics and other persons interested in accounting and finance education and research. It operates as a boundary spanner to foster innovation in terms of teaching and research.

Turning to measurement, Leung discusses that impact means different things for different participants in a collaboration. For academics, performance management has focused on measuring publication numbers and quality, citations, research funds awarded, and so on (Cooper and Guthrie, 2017). These actions may be counter to the aims of an industry partner who wants help solving a 'real-world problem' or who wants to develop innovative commercial products. The measurement frameworks for academics relied on by Australian governments to date can be a blunt instrument in that they do not allow for the wider range of collaborative experiences. Too often, they are based on journal rankings.

In summary, Leung (2017), in reflecting on the discussions and her experience, highlights how to improve collaboration, via four broad themes: disruption, the public interest, innovation and impact. Her paper has benefited not only from the contributions of the panel members at the Thought Leadership Forum in February 2017 but also those who were in the audience and enthusiastically participated in the discussion.

Universities and business schools, alongside businesses in general, face, and will continue to face, disruptions as a consequence of changes in technology, business models and public expectations. To assess the implications of disruptions, we adopt a 'back to basics' approach by reflecting on the foundations of accounting, where the cornerstone of serving the public interest is espoused. This role-reflection helps us to identify means to change, for example, to adopt a transdisciplinary approach, to operate outside the traditional routes, leading to new thinking and striving for innovation. Neither academe nor business nor industry can undertake innovation on their own; they need to collaborate with one another. Collaboration creates a visible impact that brings value to society.

Professor Ann Brewer is the Dean of the University of Newcastle, Australia. Her paper 'Initiatives for University–Industry Transitions: A University Perspective and Illustrations' has three aims. First, it defines partnerships; second, it proposes a partnership equation model that includes the strategic and participative pillars; and, third, it highlights how this model assists in both initiating and managing partnerships as well as evaluating outcomes. To address these aims, she highlights the attributes of strategic and participative governance that facilitate and impede effective university–industry partnerships. Strategic attributes, such as priorities, structures and policies are only one side of the equation for achieving effective partnerships.

Brewer identifies the cross-sector nature of university–industry partnerships as they are formed between different types of organisations and various industry sectors, as well as from the non-profit and for-profit spheres. She identifies that university–industry partnerships are strategically important for many reasons, including expanding the capacity to commercialise research. However, what sounds simple in theory scarcely does justice to the complexity of developing partnerships in practice, despite the synergies and benefits for each party. Besides, there is insufficient evidence to attest to how best to maximise outcomes and practice for partnerships.

She observes that, in Australia, competition for funding for non-industry research is declining year by year. Realistically, this funding is available only to a small percentage of researchers with well-established research records and trajectories.

Brewer (2017, p. 82) provides an in-depth case study of one Australian university and highlights that:

> The first principle for university–industry partnerships to thrive, according to the University of Newcastle's (UON) Vice-Chancellor, Professor Caroline McMillen, is an effective alignment of university strategy and priorities alongside creating new avenues to capture, scale up and guide industry engagement opportunities through to eventual collaboration. Visible and feasible processes to support strategy and research alignment enable the assessment of potential engagement opportunities to find a match with the University's overarching vision and mission.

Each of the University of Newcastle's university–industry engagements illustrates the application of the partnership equation model – the interplay between members of the partnership in producing strategic partnership capital, derived from the social capital created, as well as managing any inherent tensions.

Brewer observes that university–industry partnerships play an essential and increasingly energising role in the global economy. They benefit partnership stakeholders and others outside the relationship. However, unfortunately, little research has been conducted into the partnering process, the facilitators that lead to cross-sector partnerships and impediments to success. All the examples in her paper elucidate the partnership equation, contributing and drawing from the core elements of strategic and participative governance.

In her conclusion, Brewer (2017, p. 88) states that:

> Considering strategic and participative governance together points to the utility of using such a model to both explore and evaluate partnerships and to disentangle some of the complexity underlying a CSP [cross-sector partnership]. It may be time to rethink exactly what CSPs mean in a university–industry context, given the paucity of them, and consider the policies and conditions that shape or block them, as well as the breadth of their goals, expectations, and assessing and publishing effective outcomes.

PART C: SPECIFIC CHALLENGES AND OPPORTUNITIES

Professor J. Barry Cooper, Professor of Accounting and Associate Dean – Regional Engagement in the Deakin Business School and Professor James Guthrie, Head of Academic Relations, Chartered Accountants Australia and New Zealand in their paper titled 'Post the Watt Review – Australian Business Schools and Collaboration with Industry' explore several contemporary Australian policy settings concerning a collaboration between industry and university business researchers. For instance, recent statements by the current Minister of Education and various Australian Government papers have highlighted a shift towards relevance. Impact of university research and teaching and collaboration is a key

for establishing this. Such contemporary developments have raised several challenges, and their stated aim is to consider the question: How should Australian business schools react to contemporary changes towards research and engagement in the Australian higher education system?

Cooper and Guthrie (2017) review several contemporary statements concerning the Australian research sector and provide a brief review of the Government's National Innovation and Science Agenda. The paper reflects on research and the authors' considerable personal experiences with the Excellence in Research for Australia (ERA) and the UK experience with the Research Excellence Framework (REF). Both of these are national government initiatives attempting to identify, quantify and disclose the 'quality' of university research and teaching systems. Various issues to be faced by business schools in the future are explored, with a focus on industry collaboration for research and conclusions drawn about future directions.

The paper particularly focuses on the Australian Government's 2016 Watt review. Cooper and Guthrie (2017) indicate that the performance management systems in use by Australian business schools for measuring workloads and research expectations have to be modified to encompass the recommendations of the Watt Report. They suggest a number of strategies that Deans might adopt to improve the incentives for business academics to participate in collaborations with industry. There should be a renewed emphasis on allocating workloads to appropriate staff who can focus on, and connect with, industry. Incentives for generating research income will need to be put in place (e.g., salary loadings for academic staff successful in gaining research income). Due weight to research income generation and industry experience/networks will need to be considered in future staffing appointments. This will require business schools to re-think how they recruit and value staff. School Advisory Boards will need to be used as leverage to develop strong networks into companies and the professions.

Cooper and Guthrie, (2017, p. 100) conclude that:

> Business schools adapted to change in the past when the ERA was introduced and will do so in the future, as the new paradigm for research measurement and impact unfolds. The role of the ABDC will become increasingly important

in providing leadership and a focus on business schools to better engage with government policy makers, university management and industry. We can learn a lot from the experiences of our colleagues in the UK.

As the process by which impact is to be measured will change, Cooper and Guthire (2017) suggest that business schools should modify their recruitment practices to include a mix of staff with the required experience, in order to emphasise collaboration with industry to solve problems and, in doing so, attract more industry research funding. In contemporary times disruption is evident everywhere and business schools are not immune. The issues they face include

> social change, new technology and more accountability for the funding provided by the Government, together with on-going reliance on international student fees to balance budgets. Business schools will also need to become much more entrepreneurial and innovative in forming partnerships with corporations and government agencies in order to demonstrate engagement and impact from their research (p. 100).

Professor Geoffrey Stokes is Deputy Pro Vice-Chancellor, Research, College of Business, RMIT University. Stokes (2017), in his thoughtful paper 'Improving Collaboration between Commerce and Business Researchers to Improve Innovation', explores several important issues. These include the barriers to, and enablers of, improving collaboration between universities and industry, government and the community. He outlines three key questions and provides some observations about them.

- What are the barriers and enablers to university–industry collaboration?
- How can we improve universities' interactions with industry?
- How can we collaborate to advance innovation?

In doing so, he provides a detailed case study outlining the steps RMIT University is taking to address these issues.

Stokes (2017) explores why there may be something special about the Australian economy or Australian business that contributes to the disconnect between industry and researchers. Is there something flawed about the culture of Australian business? Is it the nature of the government structure of rewards, incentives and markets? In contemporary times it is widely argued amongst policy makers that if only industry and researchers could get together, then more innovation would result. Without reviewing the comparative studies and other impediments to innovation in Australia, Stokes is not confident that just bringing the two together would automatically produce more innovation in any of its forms. Also, he points out that when university researchers work with industry they are not just undertaking a consultancy. The researchers may also want to use the data and results for the purposes of publications, which raises issues of intellectual property and other matters.

Stokes (2017) observes that within this context, a different strategy is needed, and governments and universities have been investigating the possibilities. One outcome has been to encourage research with 'impact', which the Federal Government will incorporate in its three-yearly research quality assessment exercises (ERA). Universities are preparing their submissions for the 2018 ERA, which for the first time will include the criteria: engagement and impact. In what represents a major change, all universities will be working towards presenting their research record in terms of engagement and impact over the next year, and beyond. In addressing these issues, RMIT University itself is shifting how it encourages and rewards research, through performance measurement systems and incentives for academics. There are very practical barriers within business schools that need to be overcome.

Stokes (2017, p. 105), in his conclusion, states that:

> For us to overcome the present condition of being "dwellers in different zones, [and] inhabitants of different planets" stronger lines of communication between industry and researchers need to be established. The Chartered Accountants Australia and New Zealand and RMIT University Thought Leadership Forum, and this publication, are a major step in this process because they can push further that kind of thinking and practice. By means of such analysis, dialogue and robust critique, we may be able to reduce the distance between the "two nations" of industry and university research and

thereby foster a stronger collaborative culture of innovation. Chartered Accountants Australia and New Zealand and the School of Accounting at RMIT University are to be commended for their initiative in generating discussion on this topic.

Dr Sharon Winocur was the Executive Director of the Business/Higher Education Round Table (B/HERT) in Australia, whose mission is to pursue policies and collaboration initiatives that will advance the goals and improve the performance of business and higher education. Winocur (2017), in her paper, titled 'Improving Collaboration and Innovation between Commerce and Business Researchers' explores a number of government policy and funding initatives. These include the National Innovation and Science Agenda (ARC and Department of Education and Training, 2016), which promotes innovative businesses to partner with world-class researchers to build on Australia's strong record in science, and exponentially grow the commercial value of ideas. Winocur argues that the Agenda's policies and programs are all about investment for the future with attention on what must be done now, using the most durable and reliable resource this country can produce – creativity and ingenuity. The Agenda's initiatives illustrate the Government's emphasis on stimulating research activity, and its application and translation for business outcomes so that business is encouraged to engage more effectively and ultimately reap the benefits.

B/HERT, an organisation whose vision focuses directly on Australia's innovation potential to be realised through productive collaboration between business/ industry and the higher education sector, welcomed the introduction of the National Innovation and Science Agenda for igniting the national conversation about the value of innovation. The Agenda's heavy emphasis on collaborative research lifts the role and importance of science and entrepreneurship for both business and universities.

However, implementation of the innovation agenda is dependent upon an informed private sector that understands where Australia needs to head and how it needs to transform. Business schools are the most appropriate vehicle to help redefine business models in this new knowledge economy and to educate and retrain business people to exploit every opportunity to innovate and compete successfully. Business schools

can bridge the gap between the commercial sector and higher education in demonstrating impact:

- through relevant collaborative research that is meaningful and of value to business and industry;
- through quality undergraduate and postgraduate education that addresses innovation through topics such as research translation and commercialisation, the digital economy, business processes that transform startups into successful SMEs, thereby providing Australia's future business leaders with the technological tools that underpin successful competition;
- by becoming the established central hub for business and industry to access university expertise and partners across faculties and disciplines; and
- by continuing to build on the successful reputation in international education and establishing business networks with international graduates.

Winocur (2017, p. 108), concludes:

> Innovation is about embracing new ways of thinking, new ways of working and new ways of living, which involve significant cultural and organisational changes that are essential adjustments to a knowledge economy where disruption has become the norm. The challenge to an innovative Australia is the scale and speed of acceptance, by industry in particular, of these monumental and ongoing changes. The challenge for business schools is to nurture this culture of innovation and collaboration that will generate successful and sustainable new world industries led by outstanding business leadership.

CURRENT STRATEGIES AND CHALLENGES

The presentations and discussions at the Forum and in this publication reveal business practitioners and academics are well aware of the importance of expanding the limited number of current collaborations between universities and industries. The time- and resource-consuming nature of building trust within partnerships presents a challenge for academics, who are being pressured more and more to provide results to satisfy administrators with short term and ever-changing goals, and practitioners in business and government, who have a keen eye on the need for return on investment and the exigencies of budgetary control.

Strategies towards extending collaborations that address future challenges faced in Australia are yet to be developed in a systematic way. Academic methodologies to encourage collaboration, such as transdisciplinarity, which encourages engagement of all academics whether they have an inclination towards basic research divorced from practice, or applied research with practitioners being part of the research team, exist and can lead to better understanding and knowledge of the complexities of the business environment. Nevertheless, these are the exception in business research in Australia.

Until incentive structures are changed for academic researchers and practitioners it is more likely that Australia will be a follower than a leader in development of collaboration in anything other than the piecemeal manner being adopted by some of the universities and organisations represented at the Forum. What is needed is the intervention of third parties, such as boundary spanning organisations or professional associations, who have an eye on public interest as well as commercial opportunities for their members, to act as the catalyst for bringing parties together. The extrinsic rewards to individual academics and practitioners provided by improved funding is a very small start on the road to changing mindsets in the direction of collaboration. Encouragement of intrinsic rewards from achieving individual creativity and group successes, is the more difficult, intangible path for academics to take when in the current university structure they tend to be just numbers.

POSTSCRIPT

In concluding our introductory paper, we would like to focus briefly on the processes associated with our project. This innovative collaboration between accounting professors from the Faculty of Business and Economics, Macquarie University and The Australian National University and the professional accounting body, Chartered Accountants Australia and New Zealand, is an annual, ongoing stakeholder engagement activity. The initiative is aimed at exploring contemporary trends and social, political and cultural issues associated with the accounting profession and informing education, policy and practice to support and guide current and future professional accountants and business leaders in contemporary times.

Starting in 2010, and during the eight years to 2017, the collaboration's core has expanded to become a strong network incorporating the business community, practitioners, academics and policy makers, who share ideas and work together to confront issues critical not only to their own organisational interests but to Australia's national performance and prosperity. These issues have included the leadership and direction of accounting education in Australia, bridging the gap between research and practice, emerging pathways for new entrants into the profession, the role of online learning in new accounting education, engagement with Asia, future proofing the profession, grappling with how to secure opportunities and face the challenges of digital disruption and the changing face of work, and the future of professional associations, as well as this current volume, examining the importance of collaboration between business schools and industry.

There are two pillars to the collaboration. The first pillar, the annual Forum, brings together participants from a wide range of stakeholder groups, including government, higher education institutions, the accounting profession, the business community and professional bodies. It provides an opportunity for dialogue in developing the profession in the modern and changing economic, social and environmental milieu. The Forum attracts different participants and attendees every year, because of the diversity of topics chosen. Over its eight years to date, more than 800 individuals, representing various stakeholder groups, have been involved in the Forums. Forum talk is not enough to implement change, however. Hence, to engage further with the business, academic and policy communities, the second pillar of this collaboration is the annual *Academic Leadership Series*, which synthesises and disseminates the key messages from the Forum. It extends the discussions at the Forum by providing a platform for contributors to explore the concepts in greater depth.

Chartered Accountants Australia and New Zealand represents over 140,000 professional accountants and is committed to developing relationships with higher education and engagement with current and future business leaders – the Forums and Series forge these links, with a focus on developing relevant and pragmatic outcomes. Representatives of all parties in the accounting profession come together for the

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PART A

THE WIDER CONTEXT

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The Value of Collaboration

ROSS DAWSON

INTRODUCTION

What is the value of academic–business collaboration? The current landscape in Australia suggests that there is much potential value that is not being realised, which begs the question, what is possible? What value can be created through utilising the wealth of resources we have in the academic–business sector for the benefit of the business community and society more broadly?

To answer these important questions, we must first understand the true value of collaboration. Collaboration is the source of new ideas – it is where innovation comes from. Collaboration makes connections between things that already exist and can be brought together. As Kary Mullis (1999), the Nobel Prize Winner for Chemistry said about his own research: 'I didn't find anything new; I just connected things that existed before'. This is at the heart of the value creation that comes from collaboration – from being able to pull together the seemingly disconnected.

Making connections starts in our minds, but the connections take shape through many different paths, notably in conversations and in organisations, where capabilities and resources are channelled by technology and research.

THE ACADEMIC WORLD

The pace of knowledge creation in academia is quickening. We have evidence of this in the increase in the number of peer-reviewed articles published. Figure 1 displays the growth in scholarly and peer–

FIGURE 1 FASTER PACE OF KNOWLEDGE CREATION

Legend: Scholarly journals; Peer reviewed

JOURNALS

YEAR

1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010
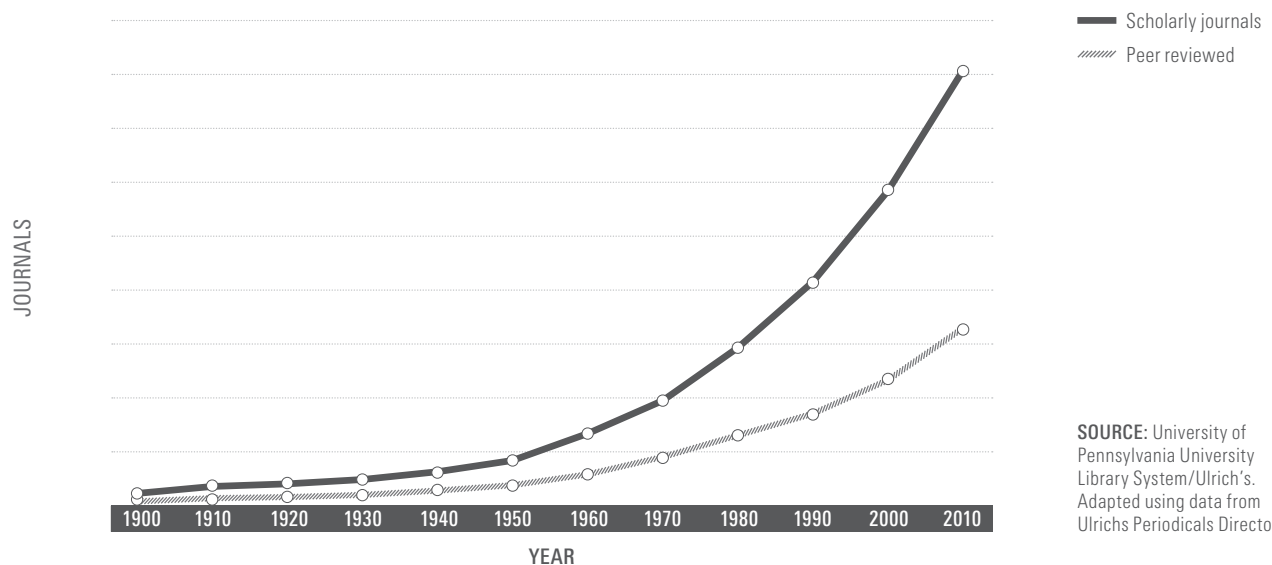
FIGURE 2 MORE OPEN FLOWS OF KNOWLEDGE
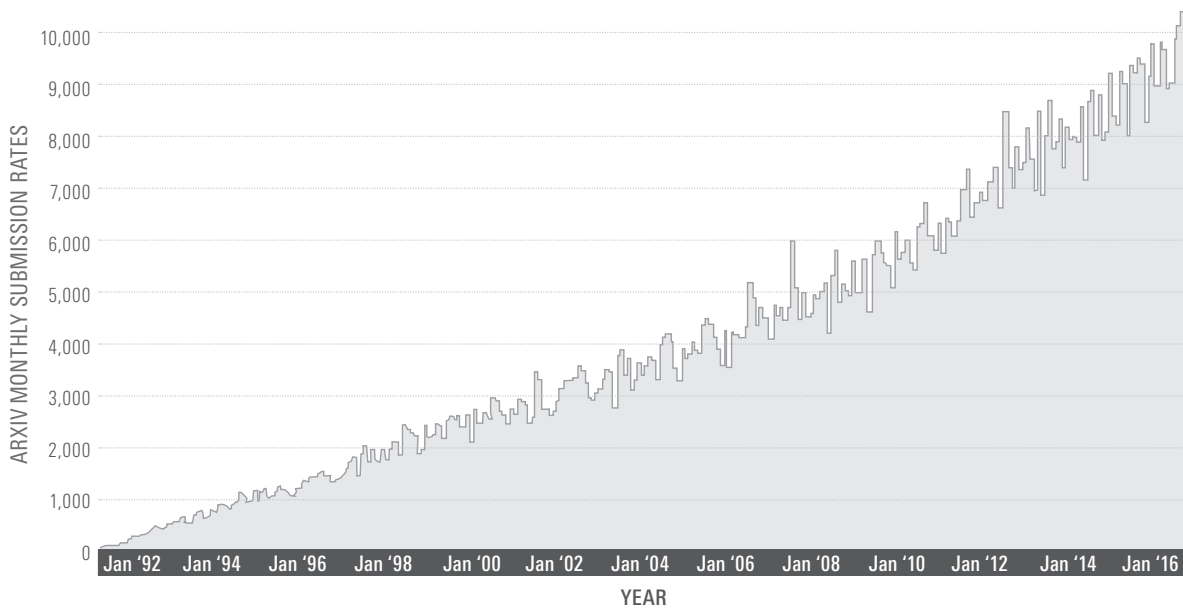
SOURCE: https://arxiv.org/stats/monthly_submissions

FIGURE 3 COMPLEXITY REQUIRES COLLABORATION

SOURCE: http://ml.sun.ac.za/2012/12/06/trend-anomaly-in-academic-publication-data/
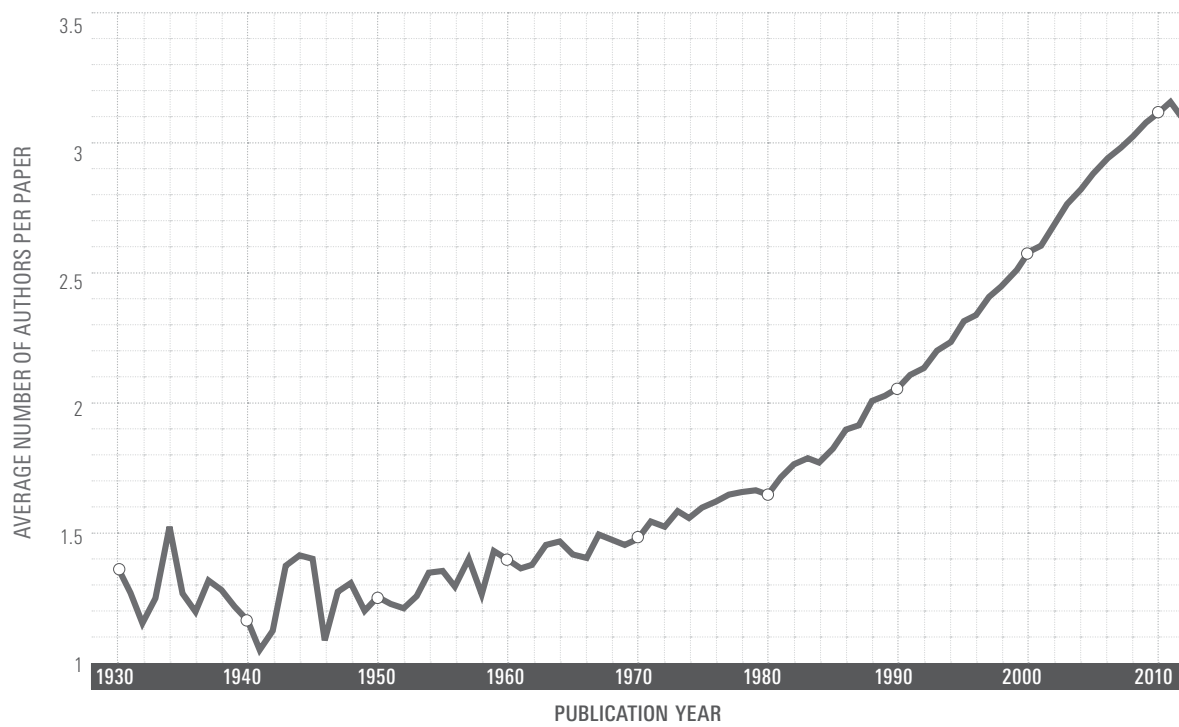
reviewed journals from 1900 to 2010 and Figure 2 shows the monthly submission rates on *arXiv*, an open access journal. There has been increasing emphasis on openness in academic research, and this shift in accessibility has the potential to be transformative. It moves research from a cumbersome process of lengthy peer review and a narrow audience to immediacy and accessibility, where new ideas can be immediately used and connected to create new possibilities. The potential of these connections is rapidly growing, requiring greater collaboration.

Figure 3 reveals the average number of authors per paper between 1930 and 2010. It shows that in the past papers were more commonly authored by one person. However, the number of authors per paper has increased significantly over the years. This increase in collaboration is driven, at least in part, by the growing complexity of the interconnected world, in which it is necessary to bring more expertise together to push out the boundaries of knowledge.

There is a range of methods for ranking academic institutions. Figure 4 provides the Shanghai ranking, which is mostly based on research publications, citations and related factors. It demonstrates that the key to success in the academic world is in publishing – this is how institutionalised reward mechanisms are set up and how institutions themselves are ranked. University success, therefore, relies on a narrow measure, one which is contrary to facilitating collaboration. Embedded reward structures in universities do not encourage engagement and impact in the business world.

Similarly, university timeframes are not aligned with those in the business community. Businesses operate on very short timeframes while research projects take a much longer time. Another significant challenge in the academic community is the intellectual property structures of university administration – patent offices, technology transfer offices and so on, which set boundaries on collaboration. Boundaries are everywhere in the academic world, not least in the way universities have traditionally been structured into faculties based on disciplines. This is counter to the widely accepted way forward for collaboration – multidisciplinarity. Discipline boundaries are artificial structures even in the purest academic terms but much more so when thinking about academic–business collaboration, because the aspect of every other faculty touches business in some sense.

FIGURE 4 PRIORITIES

Academic Ranking of Universities 2016

COUNTRY RANK	INSTITUTION
1	The University of Melbourne
2	The University of Queensland
3	The Australian National University
4	Monash University
5	The University of Sydney
6	The University of Western Australia
7–8	The University of Adelaide
7–8	The University of New South Wales
9–14	Curtin University
9–14	Deakin University
9–14	James Cook University
9–14	Macquarie University
9–14	Queensland University of Technology
9–14	The University of Tasmania
9–14	Flinders University
15–21	Griffith University
15–21	La Trobe University
15–21	The University of Newcastle
15–21	University of Technology, Sydney
15–21	The University of Western Sydney
15–21	The University of Wollongong
22–23	RMIT University

SOURCE: adapted from http://www.shanghairanking.com/ARWU2016.html

Bounded thinking also constrains academics – the concept commonly referred to as 'the ivory tower', in which academics consider business as the world apart. Academics are good at collaborating with each other (see Figure 2), but how well do they collaborate with others? Figure 5 shows the OECD ranking for firms collaborating with universities. Australia appears at the bottom of the chart.

THE BUSINESS WORLD

Increasingly value creation in the business sector does not happen only within organisations, but also across business ecosystems. This is at the heart of how business works today, where organisations collaborate with their partners, customers, suppliers and other organisations. Business, unlike universities, is one of the most transdisciplinary domains. However, just as

academics may be characterised as looking down at business from their ivory towers, business may also be perceived as thinking of academia as far removed from the reality of the world in which people 'get their hands dirty'. Figure 6 shows the percentage of innovation-active businesses sourcing ideas from universities or other higher educational institutions (DIIS/ABS). Only a small proportion of Australian businesses say that they source innovation from universities. This suggests that, in general, business does not even think to involve universities in innovation – in other words, there is little interconnectedness.

The interconnectedness required to form better relationships between universities and business is the same as that already used by business ecosystems – it is enabled by flows of information through technology and integration of systems. The

FIGURE 5 ROOM TO IMPROVE

Firms collaborating on innovation with higher education or public research institutions, 2008–2020 (%)

	Large firms	Small to medium firms
Finland	70.0	29.2
Sweden	48.2	12.9
Germany	43.2	13.9
Korea	39.8	18.3
Japan	37.3	18.7
France	34.9	13.7
Spain	31.3	10.8
United Kingdom	31.3	16.8
Israel	28.6	15.6
Poland	28.4	10.1
Ireland	27.5	9.3
Italy	25.1	4.9
Turkey	24.0	7.5
Russia	23.3	16.2
New Zealand	22.5	5.1
Brazil	18.0	4.6
Mexico	3.9	12.5
Australia	3.5	4.1

PERCENTAGE

■ Large firms ■ Small to medium firms

SOURCE: adapted from https://www.oecd.org
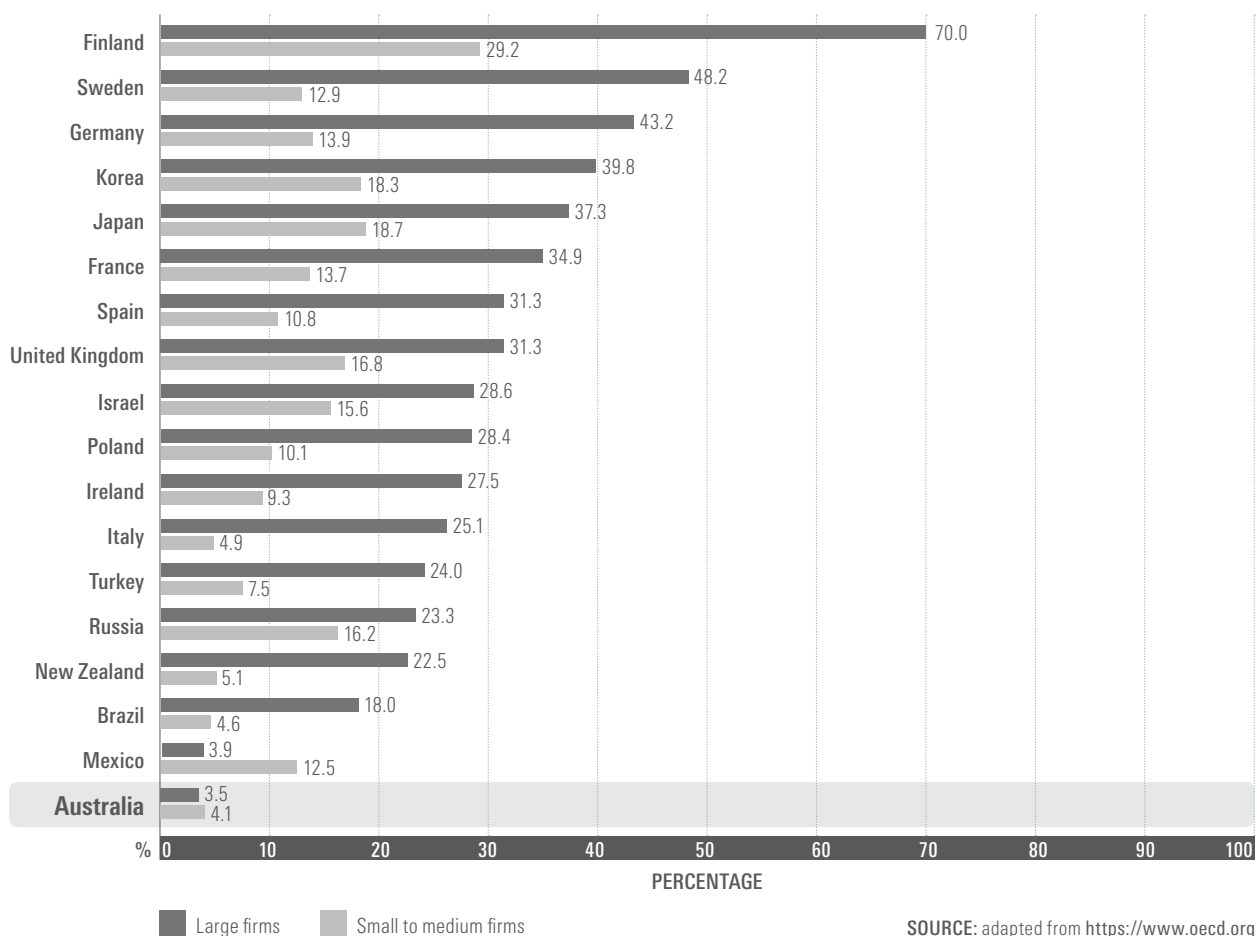
FIGURE 6 INNOVATION-ACTIVE BUSINESSES SOURCING IDEAS FROM HIGHER EDUCATION

Percentage of innovation-active businesses sourcing data from:

SOURCE: adapted from http://www.abs.gov.au/ausstats/abs@.nsf/Previousproducts/8158.0Main%20Features72012-13?opendocument&tabname=Summary&prodno=8158.0&issue=2012-13&num=&view=
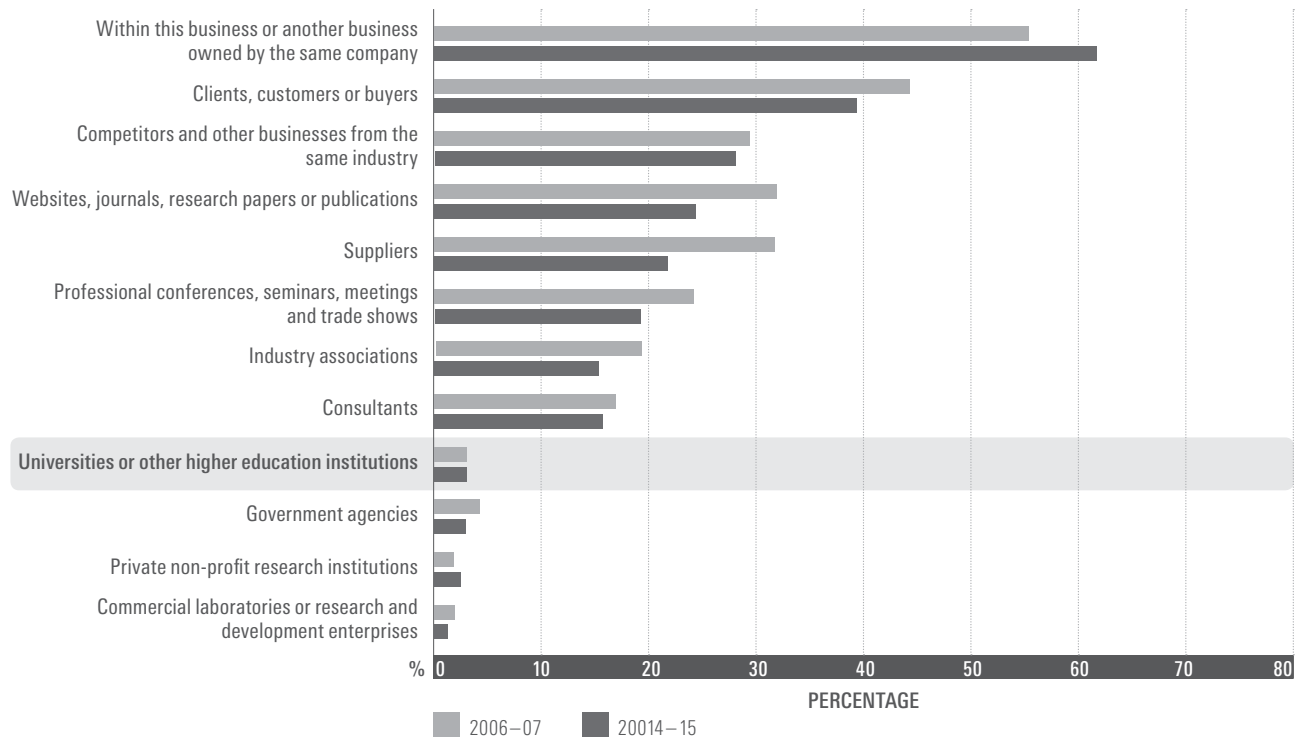
contemporary business model design focuses on how to create value with others and take an appropriate share of value for ourselves (see Nielsen, 2017). Figure 7 is an illustration of business model design. In this context, there is a very definite role for universities as a part of that ecosystem of value creation. But how can these work together to create an ecosystem of mutual value creation?

WORKING TOGETHER

The future of universities and business is in transcending boundaries between organisations – between sectors, between silos, between working. There are a number of challenges to developing an ecosystem in which the academic world and the business community not only co-exist but actively collaborate (see Stokes, 2017). In order for connections between these two worlds to be meaningful, they must be visible and definite, so that they can be further developed. This is important because different

people think in different ways. For example, some people are drawn to the academic world and some to the business world. We ask: What interests these different people, what excites them about their work, what do they value? These core personal philosophies are framed by people's environment – the structures of their workplace, the reward mechanisms and organisational ways of thinking. The institutionalisation of these philosophies has a profound impact on how people go about being connected.

As outlined by Stokes (2017), one of the challenges to developing the ecosystem is opposing timeframes. The constraint of short (business) versus long (university) timeframes is a straightforward and soft constraint, one that can be quite easily worked around. It means thinking differently about research design (see p. 36). Another challenge is the rigidity of the structures of the commercialisation and intellectual property efforts in universities. Again this is a constraint that can be worked around.

FIGURE 7 BUSINESS MODEL INNOVATION

| 1940 | 1950 | 1960 | 1970 | 1980 | 1990 | 1992 | 1994 | 1996 | 1998 | 2000 | 2002 | 2004 | 2006 | 2008 | 2010 | 2012 |

BUSINESS MODEL INNOVATION MAP

1. No frills
2. Supermarket
3. Franchising
4. Pay per use
5. Performance-based contracting
6. Rent instead of buy
7. Fractionalisation
8. Availability leasing
9. Subscription
10. Freemium
11. Leverage customer data
12. Peer-to-peer
13. Hidden revenue
14. Multi-sided platform
15. Razor and Blade (R): Reverse
16. Online (E-Commerce)
17. Cash machine
18. Crowdsourcing
19. Customer designed
20. Long tail

SOURCE: International Society for Professional Innovation Management

In addition to constraints to working together there are connections – already academics and business are tied, and these ties provide some potential domains for value creation. One of these is education. The academic–business interaction is, I think, unique, in its feedback loop. Rather than a lecturer imparting knowledge to a student, in business, there is a focus on postgraduate and executive education. Many executive educators report that they learn a lot from their students: the positive feedback loop, where relevant education is enabled by insights from those being taught, creates faster change. Similarly, the feedback loops mean that lessons learned in business can be applied in university structures like commercialisation. If lessons and experience in entrepreneurialism and innovation are embedded in business faculties, these lessons can then be implemented across the university. While currently, in the most part, university commercialisation activities are a constraint, it is an area in which business faculties can take the lead, because they best understand, out of all faculties, the issues

around innovation and business. Some universities are beginning to embed a Graduate Certificate in Commercialisation into their PhD programs. This furthers the concept of transdisciplinarity, recognising that many of the capabilities of business not just can, but must, be applied across universities to develop innovation and place the business faculty at the core of the ecosystem.

Business model innovation is an essential domain because innovation is not necessarily in technology but rather in and around what are the new models being applied. There are many ways in which academic insights can be applied in a business context. In quantitative areas, network analysis and network science, among other domains, can be applied very effectively in business model innovation. These are beyond the capabilities of many organisations, including many of the large consulting firms, but within the capacity of universities, and provide an understanding of the issues around business model innovation within industries.

For universities and business to develop a stronger relationship, it is important to recognise that collaboration is a capability. It starts with a mindset: a way of thinking, and is supported by skills, processes and structures. These range from the technological aspects of how to expose information, the processes for trust building, and how to understand the issues around effective business collaboration. These should be core capabilities that are a focus for business faculties so that they are a source of excellence in understanding in which they ask and answer: What are the processes; what are the structures; what is the mindset; how can we teach this; how can we model this; how can we understand the collaboration capabilities that can be applied to businesses, to other faculties in the university, to the students and the people we work with?

ENTREPRENEURSHIP

Entrepreneurship is an interesting lens through which to examine the idea of the business ecosystem because it offers many opportunities for engagement. It is a particularly useful example of the benefits and application of value-creating relationships, particularly in academic–business relationships. More and more large businesses are looking to the entrepreneurial

sector to understand what they need to do to keep up in an extremely dynamic, fast-moving world.

There are many entrepreneurial courses across Australia, for example, MBAEs – MBAs with entrepreneurial courses, some of them entrepreneurial degrees themselves – but not all of them are run in business faculties. In fact, engineering faculties often run entrepreneurship programs. Entrepreneurship is applied quite differently in different domains, be it in fashion, in medicine, or in information technology and, therefore, approaches collaboration differently. But business faculties can and should be involved across all the schools in the university if they are to drive innovation.

There are broadly two major frames for how startups are institutionally assisted: acceleration and incubation. Acceleration is the idea where over a set period of time, often three months, sometimes up to six months, new ventures are assessed and provided with resources, mentorship, connections and relationships. One such example is the University of Melbourne Accelerator Program, in which startups that have originated from within the university are provided with skills, mentoring and community in which networks are fostered.

Incubation is the provision of space and support, over an undefined period of time, in order to develop ideas and connections to be able to drive value. Cicada Innovations, which is owned by UNSW, The University of Sydney, UTS and ANU, has been voted the best business incubator in the world by the International Association of Business Incubators.

These programs are not necessarily run by business faculties. Rather, there is a proliferation of different structures around entrepreneurship in universities in Australia, with some based in business faculties, others run by engineering or computer science faculties, and others independent of any one faculty, or with ties to business. While no one model is preferable, clearly business faculties need to be able to bring to bear the full breadth of their capabilities to ensure that these kinds of entrepreneurship programs have the greatest chance of success.

Other entrepreneurship activities in universities are more aligned with venture capital organisations, for example, Uniseed, a joint effort by The University of

Melbourne, The University of Sydney, UNSW, The University of Queensland and the CSIRO that funds medical, biotech and other research. Uniseed is essentially a separate organisation, with its board run by the universities and its activities funded by the universities. It has been able to provide healthy internal rates of return on the funds deployed in these ventures. This kind of venture moves beyond traditional commercialisation to providing, in addition to funds, networks, connections and support.

Entrepreneurism also suggests a new way of combating an old problem, that is, new metrics to measure the impact of a business faculty. Instead of measuring success by the number of graduates who are employed and their starting salaries, new measures could assess how many startups have been formed, how many have lasted for three years or more, what has been their financial success, what has been the trajectory of those startups, what is the degree of collaboration across the university, what are the number of jobs created?

COLLABORATION IS A CAPABILITY

According to Norman and Ramirez (1993), 'the only things that matter in the economy are knowledge and relationships'. This has become increasingly true since Norman and Ramirez first wrote these words – everything else has been commoditised. Knowledge, expertise, capability and innovation cannot be connected without the relationship. This is why the ability to collaborate must be a core competence and capability of universities and business faculties.

There are different styles of relationships, and in the range from a commoditised to a collaborative relationship, much relies on openness to new opportunities, the degree of trust and the scope of the relationship. Universities come to this from a good starting level of trust, credibility and openness to exploration. But they must also move their partners' attitudes more and more to the collaborative: academic–business relationships must shift from a black box relationship to one which is a true knowledge–based relationship. Such a relationship must be characterised by both parties being more knowledgeable as an outcome (the positive feedback loop, discussed above). This is illustrated in Figure 8.

FIGURE 8 TYPES OF RELATIONSHIPS

Black-box: client receives an outcome, but is left none the wiser: readily commoditised and little scope for client interaction

Knowledge-based: client is more knowledgeable, able to make better decisions, develop mutual knowledge: far greater value and drives interaction and a strong relationship

Building such relationships is based on initial engagement, alignment, deepening of the relationship and, finally, partnering. These steps are outlined in Table 1.

TABLE 1 PROGRESSING RELATIONSHIPS

Engaging	Aligning	Deepening	Partnering
• Initial contact • Explore compatibility (qualifying) • Proposal • Small-scale engagements	• Open discussion of issues • Establish objectives and parameters • Map a path forward • Set up trust development program	• Develop mutual experience • More diverse assignments • Broader contacts across both organisations • Knowledge transfer and sharing	• Value-sharing contracts • Joint development/ marketing IP • Joint ventures • Process integration

Often universities make the mistake of wanting to become partners right away, without understanding that it is a journey. Perhaps because of this, very few Australian organisations even think of universities as places to look for innovation.

David Kolb's (1984) learning cycle illustrates this cycle of knowledge development (see Figure 9), framing the ideas of doing, experiencing, reflecting and conceptualising. In a crude sense, this cycle shows a divide in the learning experiences of business and academia. Business is concerned with the doing and experiencing; academia with the reflecting and conceptualising.

FIGURE 9 THE LEARNING CYCLE
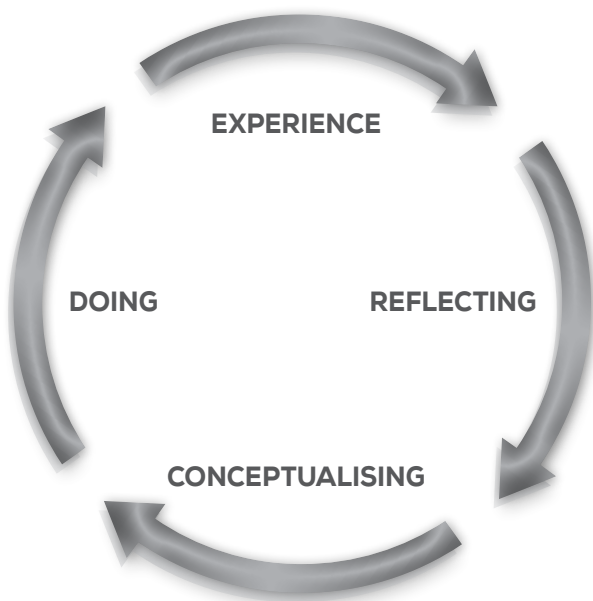
Despite its somewhat basic approach, the learning cycle framework suggests that the knowledge-development loop within the business and academic world relationship needs to be linked together. In an ideal collaboration and partnership, universities and businesses would look to each other to be part of knowledge development and develop their own knowledge capabilities, in collaboration, drawing on each other's strengths.

Considering the specific capabilities required to develop the potential for academic–business collaboration, it is critical to identify, first, what is the

aim. What the relationship is designed to uncover and achieve is not always clearly articulated, or understood, or communicated within business faculties and the broader university. For example, academics want the publication of research, which is of no interest to business. Ideally, business and academics can develop a relationship in which they both get what they want, but this can only be achieved if they first focus on a shared, common vision of what they want to achieve.

As for many aspects of organisational change, key individuals can make a significant change. These are boundary spanners, who are independent of organisational silos and bring people together (see Figure 10). Social network analysis (see, for example, Burt, 1992; Cross and Parker, 2004) identifies this phenomenon in which some people are able to span boundaries, be they across departments, organisations, faculties or cultures. Not everyone has this capacity and this is equally true of universities – not all academics will be good at engaging with business, while for others this will be a strength. Therefore, it is important that universities develop a strategy of identifying and supporting the boundary spanners, through reward mechanisms and resources. This may even mean creating a specific role for a boundary spanner.

A key collaboration capability is to be able to identify a research topic. This cannot happen in isolation and requires academics to be exposed to current issues in the business world. Businesses are often not aware of the parameters of the academic world and researchers need to assist business in navigating the gaps in the literature and the potential for collaboration beyond consulting. Of particular importance is research design, that is, designing research so that it works for business. Ries (2011) identifies the key elements as generating ideas, building something, measuring results, collecting data and getting feedback. These elements form a central loop of doing and learning, not dissimilar to the Kolb Learning Cycle.

The advocates of this lean startup movement claim to take up a scientific approach: they form a hypothesis, design an experiment, learn from that experiment, and then change and adapt based on the results. However, in the startup world, they do this over a day, unlike the academic world where these activities would take

FIGURE 10 NURTURING BOUNDARY SPANNERS
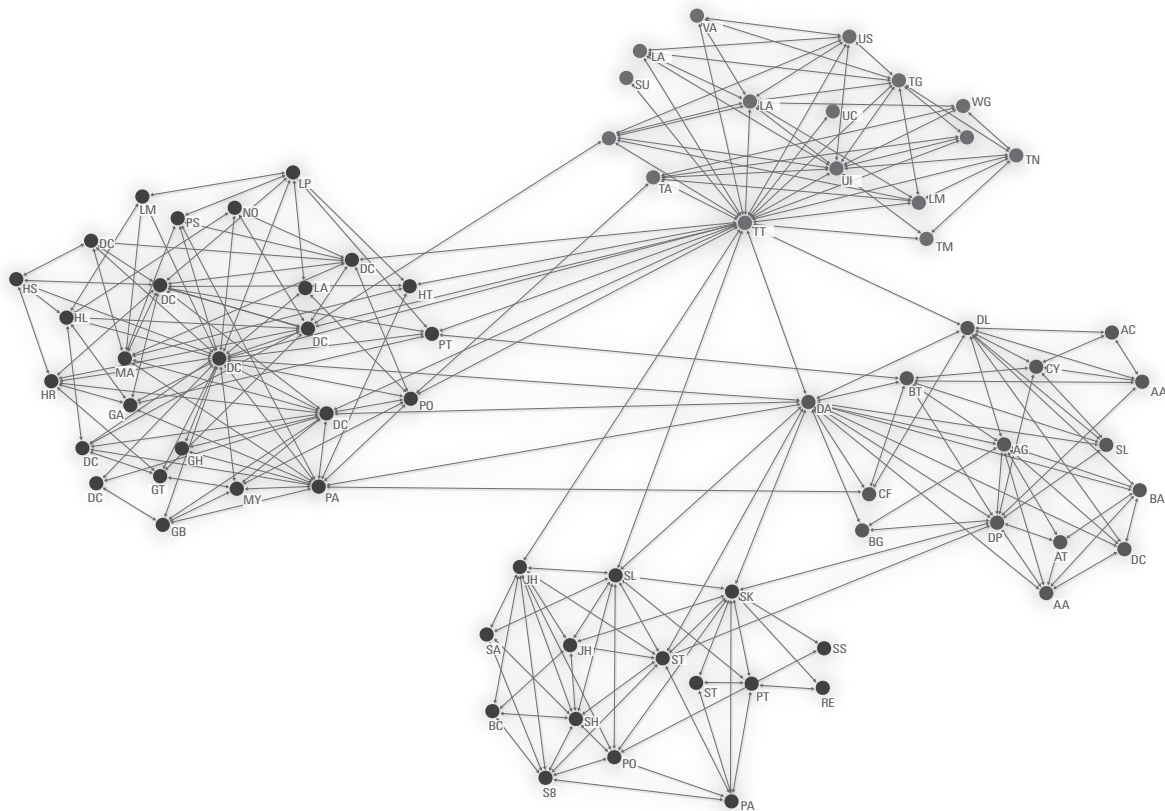
SOURCE: adapted from Rob Cross, University of Virginia

place over three years. Herein lies an opportunity to design research that can transcend the challenges by incorporating short-term iterations into longer-term research initiatives. A parallel can be seen in the medical world where there is a shift from clinical trials, in which a hypothesis is formed and tested over a lengthy trial period, to so-called adaptive clinical trials, where the trial is changed almost daily on the basis of data as it is collected. This adaptive model is ideally suited to academic–business collaboration because it involves day-to-day learning but also fosters long-term research frames and outcomes.

Finally, it is important to consider leadership. According to Carse (1986): 'Finite players play within boundaries; infinite players play with boundaries'. Business faculties have the potential and the possibility to play with the boundaries between

FIGURE 11 RESEARCH DESIGN
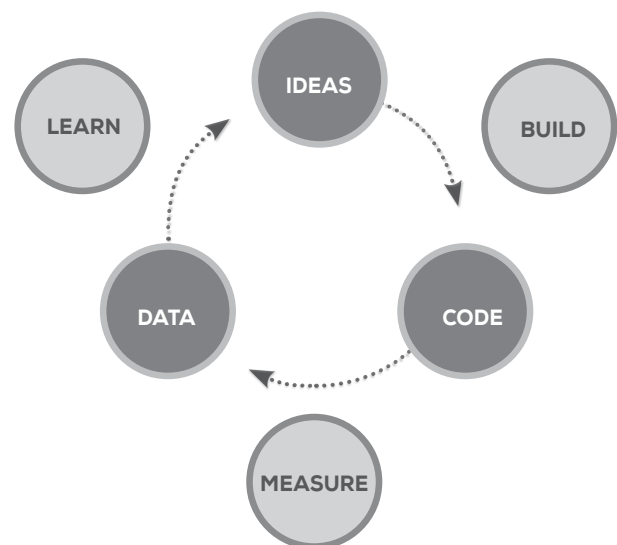
SOURCE: http://theleanstartup.com/principles

organisations; between domains of study; between capabilities today. And in moving to that space, the question is: Who is going to lead on that path; is it going to be the business faculties; is it going to be the startups; is it going to be the people in large businesses? In my view, businesses are not going to take the lead because they do not see the value that lies within, so leadership must start with universities.

Essential for industry leadership is a vision. What is it that is worth creating? What are the foundations for that vision? Understanding the roadblocks and finding the paths around those roadblocks is where leadership will make a difference.

CONCLUSION

Undoubtedly there are challenges to developing more meaningful and effective academic–business collaboration. While it is important to acknowledge them and understand them, it is also critical that we recognise that they can be overcome. The way forward lies in connectedness, in relationships, capabilities and leadership. The potential for academic–business collaboration is immense. Not only is it likely to change the university world, and the business world, but it has implications for society more widely in its capacity to foster national prosperity. These are exciting times if we build the right foundations from which to leap forward into the future.

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Academic Reflections on the Academic Research–Practitioner Gap: The Way Forward for Enhanced Collaboration

KATHERINE CHRIST AND ROGER BURRITT

INTRODUCTION

The perceived 'gap' between academic research and practice has been of interest to various parties because of the importance of collaboration as a foundation for promoting innovation and competitiveness in manufacturing and services, especially in transitioning industries (Commonwealth of Australia, 2016, 2017). The Organization of Economic Cooperation and Development reported the level of collaboration between academia and industry in Australia to be among the lowest amongst its members, providing both the opportunity for improvement and the challenge as to how best to reduce the gap and help lift innovation (Commonwealth of Australia, 2016).

The Commonwealth of Australia (2017, p. 10) notes: 'While 22.8 per cent of innovation-active Australian businesses collaborate with competitors and other businesses, only 4.8 per cent collaborate with a university or publicly funded research institution'. Notwithstanding this challenge, evidence suggests the academic–practitioner gap has continued to grow, leading to the research question: *What is the way forward for enhancing collaboration between academic researchers and practitioners?*

Addressing this research question requires consideration of the gap, whether it can be closed, whether such action is desirable and whether a closer collaborative relationship between academics and practitioners can be cultivated. The purpose of this paper is to consider all these matters by first, in the next section, examining extant academic evidence about the gap. We then, in the third section, discuss how, given current policy encouragement and support from the Commonwealth of Australia (2017), collaboration between the parties might be improved, and, then, address the main challenges and barriers to effective collaboration. We advocate adoption of a prospective approach to knowledge generation and joint initiatives that focus on cutting edge complex topics in which prior experience is limited. In the fifth section, the potential of Industry 4.0, a global revolution in information technology and interconnectivity, is presented as an example of such a complex topic suitable for investigation and improvement of academic–practitioner collaboration. The final section concludes the paper, noting the various avenues available to achieve better collaboration to reduce the academic–practitioner gap and enhance both innovation and economic performance.

THE ACADEMIC RESEARCHER–PRACTITIONER GAP

Several commentators within academia have lamented the persistence of a 'gap' between research and practice (Nørreklit et al., 2016; Tucker and Parker, 2014). With regard to accounting, seen to encompass activities of practitioners, academics and professional bodies (Laughlin, 2011), Parker et al. (2011, p. 6) note that there are those who claim 'research has become too far removed from the interests of the profession and practitioners'. This is of particular concern as accounting is generally considered to be an 'applied' discipline, although pure researchers would deny this. Assuming accounting is an applied discipline, it can be argued that the goal of academic research should be to inform practice and improve activities undertaken in the 'real world' (Mitchell, 2002). If the gap between

research and practice cannot be eliminated, or at the very least reduced, it may lead to negative ramifications for both tertiary education providers and the profession as a whole. This is especially the case given evidence (e.g., Bazerman, 2005; Bennis and O'Toole, 2005; Merchant, 2012; Pfeffer and Fong, 2002; Tucker and Schaltegger, 2016) that shows other disciplines (e.g., management consultants and advisory) are currently seeking to displace accountants as the go-to business professionals of choice. A divided profession lacks strength and will remain vulnerable to attacks on its credibility and relevance.

There are several reasons given in the literature for the academic research–practitioner gap, including why it developed and why it has persisted in the face of growing concern. For those seeking to reduce the gap, these reasons provide a basis for understanding how progress might be made in knowledge development and implementation. Issues identified in the literature (see Appendix) include: basic research and the perceived lack of relevance of academic research to practice; the need for academics to highlight rigour in their research methods; language which is incomprehensible to practitioners leading to poor communication and lack of dialogue; systemic incentive considerations reducing the interaction between practitioners and academics; and different time horizons.

Central to understanding the gap, Tucker and Parker (2014, p. 107) argue that 'academic researchers and practitioners are located in inherently different communities of practice'. Thus the two parties are motivated by different incentives, communicate in different ways and via different forums, and have different time horizons related to the pressures faced within their respective work environments. For example, practitioners often concentrate on immediate problems facing their organisation. Their focus is on informed action with little time for extended periods of thought. Practitioners are also concerned with 'value for money' which extends to the time devoted to research activities (Guthrie et al., 2011). In short, they want to see results. Academic projects, in contrast, often extend over many years and are focused on different outputs and outcomes. Even after data are gathered and analysed, the process of publication leading to meaningful recommendations business can use is generally subject to substantial delays.

However, notwithstanding the differences between academic research and practice, disagreement also exists between those within the academic community concerning what accounting research should be and the role it should fulfil. Simply put there are two schools of academic thought (see Figure 1). The first school includes those who believe research should exist 'outside' of practice. From this perspective it is the role of academics to theorise about the world they live in while remaining apart from it. This can be referred to as basic or pure research relating to its theoretical relevance (Murray Lindsay, 2012). It is left to others, such as regulators, professional associations and practitioners, to decide whether research is of use and worth applying. Hence, by definition, there is a gap between basic research and practice. The second school concerns applied research. It involves those who seek to intervene in organisations and society to make practical contributions to their field of interest. In other words, 'applied technical knowledge of instrumental or means-ends rationality' (Murray Lindsay, 2012, p. 359). Applied researchers look towards changing practice for the better and any 'research–practice gap' is of concern as it implies research has untapped scope to improve on its practical and social relevance.

FIGURE 1 A CURRENT RELATIONSHIP BETWEEN PRACTICE AND ACADEMIA
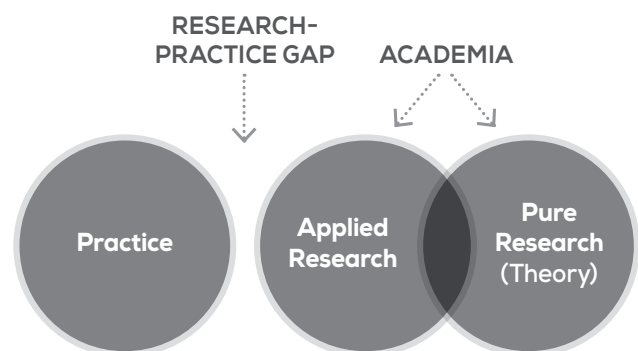
It has been recognised that both approaches contain merit and meaning, however, this has not stopped those in academia subscribing to one view or the other. In Tucker and Parker's (2014) study these perspectives were referred to as minority and majority views respectively. Pure or basic researchers will generally maintain a degree of 'distance' from those they study. Thus the research–practice gap and associated collaborations are likely to be of little interest.

Where academics appear to have failed is on the applied side. Applied academics have failed to make an impact on practice, leading to a gap.

The challenge for academics is to understand not everyone needs to or indeed should engage with interventions which affect practice, but that such interventions are necessary for the full benefits of science to be realised. One way to resolve this situation is via direct interdisciplinary collaboration between basic and applied academic researchers as well as direct collaboration of applied academics with practice. When implemented effectively the three circles representing these parties will intersect creating a degree of overlap in which mutually agreed and beneficial objectives are pursued (see Figure 2). Applied academics and basic academics can influence each other directly by collaborating in research and education and influencing development of new theories for and of accounting.

FIGURE 2 POSSIBLE RELATIONSHIP NEEDED FOR GREATER RELEVANCE OF RESEARCH COLLABORATION
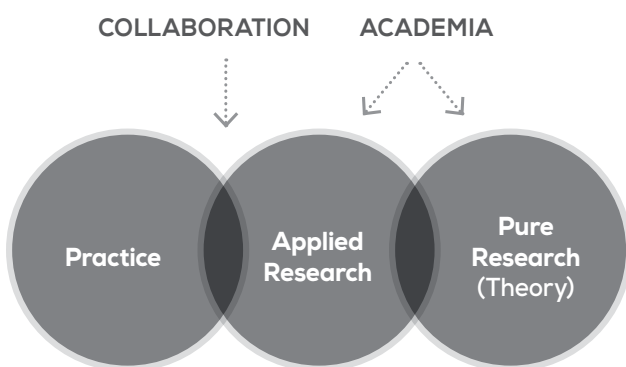
The arrangement outlined above should make it possible to reduce the research–practice gap while preserving the academic 'researcher's role and right of independence and critical thought' (Parker et al. 2011, p. 8) and, by doing so, satisfy both the majority and minority views identified by Tucker and Parker (2014). Also, it will alleviate the perception that if applied academics take a more direct role in practice it will reduce them to the equivalent of mere consultants (see also Hodgkinson and Rousseau, 2009). Through collaboration applied research can have practical and theoretical relevance (Lukka and Suomala, 2014), while

basic research can indirectly influence practice through applied research, and vice versa. The ways in which such collaboration between applied researchers and practitioners can be enhanced are examined next.

REQUIREMENTS FOR EFFECTIVE COLLABORATION

Although some have argued that collaboration between academics and practitioners constitutes a difficult undertaking, it is necessary if research and practice are to move forward in a meaningful way with a view to mutual benefit and development of knowledge. Avenues suggested as to how this can be achieved include: mutual commitment and involvement; organisational environment; the need to embrace transdisciplinarity; flexibility; and communication. These will now be discussed.

Mutual commitment and involvement

Collaborative research needs those involved to move beyond an 'us and them' mindset. Therefore, the first step is to establish buy-in and commitment from both sides. In this regard the relationship between academics and practitioners is key. As noted by Baumbusch et al. (2008, p. 135) in relation to nursing research, 'The key elements of this relationship are: accountability, reciprocity, and respect for one another's knowledge'. Collaborative studies are both practice- and research-driven, thus substantial negotiation will be needed at the commencement and throughout the life of the project. It is also likely academic research outcomes will have to take a back seat to practical implications, at least in the short-term. However, as with any research activity the applied researcher is advised to 'return to a more traditional activity pattern [upon completion of the project]' to reflect deeper on their experiences 'and to publish more of the insights that were gained during the project' (Mathiassen, 2002, p. 340).

Organisational environment

Organisational characteristics have been suggested as equally important in fostering successful research–practice collaborations. For example, Amabile et al. (2001) find that collaborations are more likely to be successful in organisations that value people and productivity. In addition, a 'culture of learning, leadership support, and available resources' is crucial (Baumbusch et al., 2008, p. 135). This applies to both

the organisation in which research is conducted and the tertiary setting in which the academics are based. In many cases it may be the latter that proves most problematic. Traditional academic incentive systems do not encourage collaboration with practitioners (Merchant, 2012; Shapiro et al., 2007). This is something that will need to be addressed and will be discussed later in the paper.

The need to embrace transdisciplinarity

Schaltegger et al. (2013, p. 219) argue that the problems facing modern business organisations are inherently complex and that transdisciplinarity offers 'a promising approach for collaboratively dealing with complexity'. Guthrie et al. (2011) concur with this perspective. Unfortunately, academics are not known for their willingness to step outside their comfort zones, with many preferring to remain within their unique disciplinary silos. Transdisciplinarity requires interdisciplinary collaboration between scientists as well as collaboration between applied researchers and practitioners and directly involves multiple academic and business-based disciplines and practitioners in research (Schaltegger et al., 2013). If applied accounting academics are serious about pursuing practice-based collaborations they must learn to extend their horizons vertically and horizontally. In the process they will come to appreciate the transdisciplinary processes for mediating between the different parties (Arnaboldi et al., 2017) leading to workable solutions to complex problems.

Flexibility

Collaborative research needs to fulfil dual imperatives. Baumbusch et al. (2008) argue research can be designed to improve, support or understand practice and the world in which we live. Although it is possible to pursue each of these objectives in isolation, such an approach would reduce the opportunity to learn and foster effective collaboration. Thus there is a need for flexibility in relation to research aims and interpretivist and inductive approaches may produce more meaningful results, at least in the short term (Hughes et al., 2008).

Communication

Practitioners and academics communicate in different ways (Bartunek, 2007). For example, academics tend to focus on the presentation of information to an audience. Practitioners on the other hand prefer an active and open discussion of issues (Amabile et al., 2001). Failure to accommodate these differences within group interactions may lead to frustration and the breakdown of what might otherwise have been a productive working relationship. Cultural differences between the two groups and the way they communicate can also lead to conflict.

According to the literature these requirements identified for effective collaboration between applied academics and practitioners (see Figure 2) are tempered with various challenges and barriers, as considered in the following section.

CHALLENGES AND BARRIERS TO EFFECTIVE COLLABORATION BETWEEN PRACTITIONERS AND ACADEMICS

Given the requirements for collaboration between applied academics and practitioners previously identified, challenges and barriers can be seen to revolve around the processes of implementation. While there are examples of successful socially useful and academically rigorous collaborations with practitioners (Hodgkinson and Rousseau, 2009), collaboration needs to be managed if it is to be effective and overcome challenges. Five critical elements evident in the literature are briefly examined in turn: leadership; time horizons; necessary academic skills; academic tenure and performance systems; and communication issues.

Leadership

An initial consideration is who should take the lead in the collaboration: academics, practitioners or intermediaries, such as professional associations with a balanced interest in the success of the collaboration. Leaders need to help transdisciplinary team members overcome any residual inflexibility about working with others having different mind sets, communication styles and traditions. Joint research involves attention to who contributes what. In a two-party relationship: do academics conduct the research and obtain data and information from the practitioners; do practitioners lead joint projects; are the skills and expertise of each party used to contribute to different parts or stages of research; is the academic the leader who settles the team into research and then steps back so that the transdisciplinary team members can secure their

mutual involvement; or do academics and practitioners feel they have equal stakes in the outcomes (Jassawalla and Sashittal, 1998)? Leadership of transdisciplinary teams is a process fraught with difficulties. Even securing agreement on the outputs of the collaboration is not a simple process. Output could be a type of text (a scientific text, a description, an instruction), implementation of an organisational change, or both, and working towards agreement might lead to irritations, provocations or inspirations, but not joint research (Kieser and Leiner, 2009).

Time horizons

Guthrie et al. (2011, p. 910) suggest 'The different time horizons of academic researchers and practitioners are a major contributor to the gap between research and practice'. Practitioners present an image that time is money, they move rapidly from decision to decision with little time for reflection and collaboration – there is too much information to assimilate and too little time (Bartunek and Rynes, 2014). There is little time for absorbing research even if it has potential relevance (Tucker and Schaltegger, 2016). Engagement in collaborations has an opportunity cost and time release can be difficult at best (Walker et al., 2008). Practitioners focus on the short run and need data and information in bite-sized chunks, whereas basic researchers take a long-term perspective which means usefulness to practice is a long time away, is less certain and is left in the hands of the practitioner (Murray Lindsay, 2012). In contrast, applied researchers in transdisciplinary teams consider short- and long-time horizons and build these into their frameworks for immediate application in practice, even though the research publication process takes longer (Tranfield and Starkey, 1998). In terms of process, applied academics take the time to appreciate and understand the settings in which practitioners operate (Merchant, 2012), while realising that as practitioners need feedback and use of results from projects in real time rather than wait for publication (Baumbusch et al., 2008) tensions might arise.

Academic skills necessary

The conventional notion of academic 'boffins' working in an ivory tower on specific and detailed research problems in a particular discipline might represent a view of the basic researcher but does not suggest well the skills required for academics to engage with

practitioners. The skills and attitudes of basic and applied researchers are different and few academics develop the ability to effectively engage with non-academic audiences (Tucker and Lowe, 2014). Depending on the type of collaboration undertaken, academic- or practitioner-led disciplinary research, or transdisciplinary teams, a diverse range of social and technical skills is needed for such interaction and engagement (Schaltegger et al., 2013). Indeed, these skills and expertise are not usually in the possession of a single individual (Tucker and Schaltegger, 2016). Amabile et al. (2001) outline the skills of teams and the team member characteristics required if collaborative arrangements are to be successful. First, there is technical knowledge and the skills relevant to the particular collaboration. Second, is the development of social skills necessary for collaboration. Third, are the attitudes and motivations based on building trust. The most important features of project-relevant skills and knowledge appear to be diversity and complementarity in the skills, perspectives and knowledge of team members, paired with a common core of understanding about the problem domain; the existence of this constellation presumably depends on the appropriate selection of collaborators. The ability of academics to work in transdisciplinary team collaborations is being enhanced through the growing availability of education and training programs in sustainability science and transdisciplinary thinking at the level of PhDs geared towards academics and Masters-level programs aimed at practitioners (Roper, 2002). Nonetheless, the different backgrounds and attitudes between applied academics and practitioners still have a high possibility of creating friction between parties and are resource-intensive in terms of the time required to learn, use and maintain the skills (Schaltegger et al., 2013).

Academic performance and tenure systems

Rewards for academic performance in business schools depend on the type of performance expected from each academic at university. In contemporary times in Australia there has been a movement from the need for academics to undertake research towards imposition of more teaching, especially for those unable to undertake research. There is a misconception that being a good teacher is sufficient to be an academic. Academics with a penchant for basic research expect to be assessed, based

on peer assessment of publication quality, and on the quantity of their output. Striving for quality over quantity is the contemporary mantra from Heads of Discipline, Business Deans and University Chief Executive Officers, especially for early career researchers. However, this is a double-edged sword as minimum expectations about quantity associated with government requirements from the Australian Research Council through the Excellence in Research for Australia can demotivate staff (Martin-Sardesai et al., 2016). Also, they must supervise higher degree research students and obtain research grants and have heavy teaching loads. These short-term performance hurdles face discipline-based, theoretically orientated academics. Academics who look for applications of their work by collaborating with practitioners are placed in an even more tortuous situation. They have to learn the skills of working with transdisciplinarity, with practitioners who have different aims and attitudes, Business Deans whose incentives are not based on research results straying beyond their own narrow disciplinary confines, and government grant processes inclined to look for low-risk investment in basic or applied research in a narrow discipline rather than the uncertainty and complexity of cross-disciplinary training and research. The result is a low incentive for the academic researcher to make the effort to report or disseminate research to (or indeed, to engage with) the practitioner community (Mitchell, 2002). Kieser and Leiner (2009, p. 527) observe a way out of this vicious cycle against applied research: 'In the face of problems of this kind, the strategy of employing two faculty teams – one for rigour and one for relevance (March and Sutton, 1997; Zell, 2001) seems easier to implement for business schools than engaging in the highly risky adventure of genuine collaborative research'. This thinking is consistent with the visual representation of academia presented in Figures 1 and 2. Government pushing of relevant research areas as the *sine qua non* for receiving grants might stimulate applied researchers, but might equally move applied researchers to become basic researchers and reduce the impact of their research as promotion and tenure of researchers moves further towards attaining quality publications. In short, academic researchers are still rewarded for what they publish, not for engaging with practice (Tucker and Parker, 2014).

Communication issues

Mitchell (2002) examines the gap between academic researchers and practitioners in management accounting in terms of poor communication between the parties and considers different dissemination options. Based on systems notions, a problem identified by analysis is the lack of feedback as graduates build their skills and knowledge and move into academia or professional streams. The conventional view is that academics produce knowledge for academics who might use such research in their courses, thereby educating future graduates entering practice, but as academics are the largest constituency of the discipline 'Academics can learn from interaction with them [practitioners] and exposure of their research work to them' (Mitchell, 2002, p. 285).

To be successful, communication has to be improved when transdisciplinarity team work incorporating practitioners is the foundation for research, and action producing successful change is the desired outcome (Murray Lindsay, 2012). A philosophical point raised by Kieser and Leiner (2009) is that from a systems perspective communication between practitioners and academics cannot be integrated as they are closed systems and independent of each other. This may be correct for basic academic research. Hodgkinson and Rousseau (2009, p. 537) highlight the emphasis applied research places on the potential for mutual benefits from knowledge transfer using communication through networks and collaborations and '... the importance of (transdisciplinary) co-design between researchers and practitioners cycling back and forth between each other's knowledge and experience ...'. They argue that, in management, there is a great deal of transfer through artefacts such as '... psychometric tests, scenario planning tools, and management science algorithms, designed by scientists and practitioners with the knowledge base of each in mind' (Hodgkinson and Rousseau, 2009, p. 537) leading to more informed theory building as well as practical effects. A final issue arising is the advent of real-time communication associated with new technology and the impact this might have on conventional means of disseminating basic academic research results, which is akin to Neolithic times in terms of speed. Few have even begun to address this matter but an implication is that practitioners desire

rapid access to information to use in their decision making, and academics, whether basic or applied, might soon be in a position to deliver.

Given these identified requirements and potential barriers for effective collaboration between applied academics and practitioners it is instructive to consider Industry 4.0, a complex and uncertain real-world problem area where the greatest benefit from collaboration might be achieved and investment has been lacking (Commonwealth of Australia, 2016).

Industry 4.0: A case in point

A cutting-edge issue facing business and the profession is understanding and accessing the prospective advantages from Industry 4.0, the fourth industrial revolution (Burritt and Christ, 2016). Kaplan (2011, p. 368) notes advancement of knowledge is most important 'when innovation is high and major changes are occurring in the practice environment of the profession'. Merchant (2012, p. 350) further states that 'where possible, [academics] should try to help solve never-before-solved problems (or puzzles) that practitioners are facing. Solving problems effectively automatically advances the practitioner to state-of-the-art'. Thus it makes sense in building collaborative networks between academics and practitioners that focus should be given to contemporary developments. It is in these areas where the benefit will be seen and the novelty generally expected from academics can be realised.

Industry 4.0 is a general term used to describe the development and introduction of smart technologies which connect machines, computers and people in real time. The rapidity of communication facilitated by digital technology driving improved and lower cost data gathering processes and implemented through connected machines (Deloitte, 2015) opens a Pandora's box of opportunities for researchers and practitioners. Both groups need to keep on top of developments summarised by Baur and Wee (2015, online) as:

> … the astonishing rise in data volumes, computational power, and connectivity, especially new low-power wide-area networks; the emergence of analytics and business-intelligence capabilities; new forms of human-

machine interaction such as touch interfaces and augmented-reality systems; and improvements in transferring digital instructions to the physical world, such as advanced robotics and 3-D printing.

Some understanding of the various ways in which the accounting profession might future-proof against the uncertainties of digital developments is considered in Evans et al. (2015) and the vital importance of collaboration in accounting research in Guthrie et al. (2011). Here the two are combined and the argument extended.

Increased connectivity of networks via the 'Internet of Things' and 'Cyber-Physical Systems' using artificial intelligence and automated action is at the forefront of changes facing business and the profession. The Internet of Things is the network of physical devices (things) embedded with networked microchip technology, software, sensors and controllers enabled to collect and exchange data. In contrast Cyber-Physical Systems are physical things monitored and controlled wired and wirelessly by computer-based (cyber) algorithms (Deloitte, 2015) through artificial (non-human) intelligence to trigger automated and self-correcting action (Burritt and Christ, 2016). While data can be obtained in this way from transactions and transformation processes, big data are also available for analysis from external events not under the control of organisations and distributed through social media (Arnaboldi et al., 2017).

The development of information and communication technologies leads to ever broader production, availability and dissemination of knowledge. The question is whether academics and practitioners move together to unlock the potential of Industry 4.0, as is happening in Germany and China, or whether the academic–practitioner gap might act as a constraint on progress and lead to the demise of the accounting profession.

Enormous uncertainty exists over whether or how quickly the world might move into the fourth industrial revolution, especially with recent growing challenges to globalisation, yet governments continue to invest trillions of dollars in developments (Burritt and Christ, 2016). To examine how the potential benefits from

Industry 4.0 might be secured for all stakeholders the need for collaboration between researchers and practitioners has probably never been greater.

There is an important role for academics whose concern is with the basic social, economic, environmental and political spheres of influence during and after the transformation, but an even bigger role for academics and practitioners combined in flexible, transdisciplinary teams based on mutual trust and commitment to understand and apply the processes by which opportunities for change can be enhanced and barriers to change reduced. Identifying new and cutting-edge topics such as Industry 4.0 is highly important in moving academic and practitioner collaborations forward, because the topic is new to all involved. Thus the parties can combine their skills to learn and bring about desired outcomes together. This may help to overcome the barriers that exist when looking at more established topics where each party thinks they know best. Once trust has been established the research agenda can be expanded. However, there are no optimal solutions, only greater understanding of the perspectives of each of the parties which collaborations between academics and between academics and practitioners can bring to workable outcomes.

CONCLUSION

Given the gap between academic researchers and practitioners this paper considers the following research question: *What is the way forward for enhancing collaboration between academic researchers and practitioners?*

Requirements for effective collaboration are identified from the literature, however, attempts to bring the two parties together are likely to be fraught with difficulty, at least in the short term, while trust is built up. There is no perfect recipe with regard to how an improved research relationship might be achieved although it will undoubtedly entail give and take on both sides in the move towards an equal role in any collaborative engagement.

That said, available research suggests it is in academia where the biggest changes will be required. Those with a penchant for basic research divorced from

practice will need to communicate better with applied researchers, and applied researchers will need to broaden their skills to welcome practitioner thinking and potential holistic involvement in research. Also, Deans and other managers will need to revise the overbearing incentive systems currently in place for academics. Acknowledging the relationship and need for both basic and applied research would be a sensible beginning towards improved collaboration. In parallel is the need to encourage increased collaboration between applied academics and practitioners accompanied by the realisation that rigour and relevance do not have to be mutually exclusive. An initial focus on new and cutting-edge topics such as Industry 4.0 where the three parties can learn together through academic-to-academic and academic-to-practitioner relationships would be a catalyst for securing the benefits of research collaborations.

In summary, overcoming the challenges of lack of leadership in addressing complex and uncertain real-world problems, different time horizons, absence of academic social skills for transdisciplinary team work, unintended consequences of academic performance systems and communication problems identified in this paper will not be easy to change. Progress in this regard will not be realised overnight. Indeed, it is likely to remain a work in progress for many years. Nonetheless, given the problems currently facing the different parts of the profession – academia and practice – the potential rewards for all concerned will be well worth the effort of making changes to reduce the gap between applied academics and practitioners. Some effort is being introduced to bring about additional collaboration. Attention-directing encouragement from government and professional bodies such as Chartered Accountants Australia and New Zealand through reports and discussion forums is providing first steps towards reducing the gap. Nevertheless, until the incentive systems for academics and practitioners are brought into closer alignment and research that changes practice is embedded in educating accountants of the future, critical policy issues, such as how best to collaborate in the face of Industry 4.0, Australia will continue to be overtaken by faster movers.

APPENDIX: REASONS FOR THE RESEARCH–PRACTICE GAP

REASON	QUOTE	AUTHORS
Lacks relevance to practice	'… generally research in accounting lacks relevance to the world of practice … practising managers and management accountants are sceptical about the objectives and outputs of research; and researchers and practitioners have diverging perspectives on the importance of different management accounting topics for research … ' (Mitchell, 2002, p. 278). 'The other, and perhaps more practically important, aspect of the "gap" relates to the researchers' emphasis on exploring behavioural, organizational and societal dimensions of the discipline as opposed to the more technically focused topics, which are, perhaps, of more direct and immediate interest to practitioners. This dimension of the "gap" is important because it raises issues which constrain the dissemination, communication and utilization of research findings for practice' (Mitchell, 2002, p. 278). '[We] contend that framing the relationship between academic research and practice as a "gap" is potentially an oversimplification, and directs attention away from the broader but fundamental question of the role and societal relevance of academic research in management accounting' (Tucker and Parker, 2014, p. 104).	Mitchell, 2002; Tucker and Parker, 2014
Academic necessity for rigour in research	'… the necessary adoption by academic researchers of rigorous social science methods, and their focus on a limited set of research questions that can be "addressed by a narrow set of generally accepted research methods" (Kaplan, 2011, p. 369), are generally incompatible with the needs or interests of practitioners' (Tucker and Parker, 2014, p. 107). Claimed to be the minority view amongst academics in management accounting (Tucker and Parker, 2014).	Tucker and Parker, 2014
Poor communication	'Academic research papers are difficult to read and understand … Academic research is typically orientated towards other academics, rather than practitioners' (Guthrie et al., 2011, p. 910). 'We should aim some writings (and presentations) at practitioners … generating even an eminently useful idea provides no guarantee of uptake by practitioners if it is not communicated well to them' (Merchant, 2012, p. 346). Gaps of knowledge between academia and practice have been long recognized as attributable to ineffective dissemination (Michwitz and Melanen, 2009). Kieser and Leiner (2009, p. 528) argue it is not 'possible to translate scientific articles into understandable texts'. 'Practitioner access to academic research was cited as contributing to the gap in Australia, however, this was not seen as a particular impediment in Germany' (Tucker and Schaltegger, 2016, p. 376). One reason for the gap is 'the inability of researchers to communicate in the language or frame of reference of practitioners …' (Murray Lindsay, 2012, p. 358).	Guthrie et al., 2011; Merchant, 2012; Kieser and Leiner, 2009; Michwitz and Melanen, 2009; Tucker and Schaltegger, 2016; Murray Lindsay, 2012
Language and style differences between science and practice	'The categories scientists and practitioners use to describe the things they focus on are very different. Translation will not be enough to bridge the gap between research findings and potential end users' (Hodgkinson and Rousseau, 2009, p. 543).	Hodgkinson and Rousseau, 2009

REASON	QUOTE	AUTHORS
Declining interaction between practitioners and academics	'Researcher–practitioner interactions have declined sharply over the last few decades. For example, back in the 1970s, a majority of the members of the American Accounting Association (AAA) were practitioners (Flesher, 1991). Now there are very few practitioners left in the AAA and other like academic organizations, and practitioners rarely attend research conferences' (Merchant, 2012, p. 338).	Merchant, 2012
Different time horizons	'The different time horizons of academic researchers and practitioners are a major contributor to the gap between research and practice' (Guthrie et al., 2011, p. 910).	Guthrie et al., 2011
Incentive systems differ for academics and practitioners	'Academics have limited incentives to undertake research that is focused on practice' (Guthrie et al., 2011, p. 910).	Guthrie et al., 2011
Some researchers prefer not to engage with practice and focus on basic research	'The fact that the gap continues to endure across disciplines suggests that the heart of the problem goes much deeper than the factors that Merchant and others enumerate such as (among others) researcher taste or preference …' (Murray Lindsay, 2012, p. 528). Lukka and Suomala (2014, p. 205) explain how some academics focus on theory rather than practice 'techne relates to the practical relevance of a study, episteme to its theoretical relevance and phronesis to its societal relevance'.	Merchant, 2012; Murray Lindsay, 2012; Lukka and Suomala, 2014

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PART B

INDUSTRY, PRACTICE AND UNIVERSITY COLLABORATIONS

A Personal Reflection: European Experiences on Value Exchange in University–Industry Collaborations

CHRISTIAN NIELSEN

INTRODUCTION

How can academics engage with companies? How can we make sure that companies get value from collaborating with academics? In this paper I explore these two key questions that are fundamental to understanding and expanding university–industry collaboration.

My background for this paper is my personal experience of university–industry collaborations. As Director of the Business Model Design Centre at Aalborg University, I have worked with approximately 200 companies (see, Lund and Nielsen, 2014) over the last six years. My involvement provides insight from a university perspective but I am also curious about the industry perspective on what we, in academia, regard as an invaluable relationship. To gain more understanding of industry's perceptions I led a research project from 2011 to 2012 that specifically focused on studying how companies thought universities should interact with them (Nielsen and Sort, 2013). This research had an additional, and self-interested, purpose, namely to gain a competitive edge over our colleagues competing for the same industry relationships, as well as colleagues from competing universities, by better understanding the value proposition for our partners (Kyhnau and Nielsen, 2015) and their requirements in regards to knowledge flows (Nielsen and Cappelen, 2014).

This European perspective and practical examples on university–industry collaboration and student activation will provide inspiration and context to the various perspectives in this publication. I have moved back and forth between academia and

business several times in the course of my career. One important thing I learned in business is, if you propose a project, or if you have some changes you wish to make within the business, you have to answer the question: What is in it for us (the bottom line)? I think that this reflection on return on investment (ROI) of activities and projects is a culture we practise actively at the Business Model Design Centre.

This reflective article is structured as follows. The next section highlights three key messages for university–industry collaboration, while the following section discusses the importance of value exchange in such collaborations and when it takes place. I then consider the roles of Business Faculty in university–industry collaborations, before arguing what ROI in collaborations means from an industry perspective. Insights from collaborations are outlined in the following section, leading to depictions of measuring both process and outcome success, and finally to providing illustrations of value exchange (with students) as played out at the Business Model Design Centre.

KEY MESSAGES FOR UNIVERSITY–INDUSTRY COLLABORATION

Recent European research into university–industry collaboration, under the auspices of the European Commission, highlights ten key findings concerning the importance of university–industry collaboration, as well as barriers and enablers for the successful implementation of these (Davey et al., 2011). Besides concluding that university–industry collaboration seems to be a crucial activity in the development of knowledge societies, Davey et al. highlight that the

collaboration types that are the most developed, also are those that are most easily measured and have clear promotable benefits. Davey et al. (2011) conclude that lack of funding and excess bureaucracy are the highest barriers to university–industry collaboration, but that removal of barriers does not necessarily lead to successful university–industry relationships. This may be due to a lack of incentives for academics (Nielsen, 2016), and a failure to recognise that mutual trust and commitment are the most important drivers of university–industry collaboration for both academics and companies (Nielsen and Sort, 2013; Davey et al., 2011). This article outlines three key messages that are the fundamental principles of university–industry collaboration.

Message 1:
Make sure you measure both process success and outcome success

Measure the success of the interaction. The discussion about successful collaboration is often centred on outcome success, but companies are interested in process success too. For university–industry collaboration to succeed, academics must pay attention to the process with the partners during the project.

Message 2:
Create proper incentives for academics

How do we create incentives for academics? In our research (see Nielsen, 2016; Nielsen and Cappelen, 2014), we studied 38 university–industry collaborations and used the outcomes to identify how to link performance measures and incentives to outputs. This work identified two key dimensions to consider, which will be discussed later.

Message 3:
Researchers need to make sure companies get ROI for their time

Researchers need to make sure that when they engage with companies, they give them ROI for the time they spend engaging with academics. That does not necessarily mean they have to earn money immediately while the research is undertaken. An appropriate scale for genuine engagement and meaningful research outcomes is, in my view, at least six years.

THE IMPORTANCE OF VALUE EXCHANGE

Companies generally have money-making agendas. They need to sustain their operations and create the cash flows that allow them to be sustainable. Companies also have social obligations, but sustainability is a prerequisite for these. This is why value exchange is important. For university–industry collaboration to succeed, researchers need to understand that when companies are spending time on research projects, they want to get a return and feedback. Some companies become involved in collaboration with universities for philanthropic reasons (Nielsen et al., 2013), however, these are in the minority. We found that companies will collaborate from a philanthropic perspective in the short term, but if academics want to create long-term relationships then returns are important.

Also, value exchange is on the agenda of the funders of universities; whether they are governments or other funding agencies. In Australia, the funding of universities is both of a public and private nature. In Scandinavia, universities are all publicly funded. But even if the government is the key funding source, they now require ROI of their money. They are looking beyond academic output; they are looking beyond citations; instead they are looking for social engagement with society and increasingly looking at the ability to create impact with companies, the business sector and society. According to the latest *Australian Innovation System Report* (DIIS, 2016, p. 10): 'It is the implementation of an idea that separates knowledge and invention from innovation'.

Therefore, for business researchers, it is important to engage with the business community to support innovation. Business academics need to take back collaboration related to improving companies from the design-based humanities and technical science programs that have become popular in recent years. According to Dawson (2017), there is a lot of university activity on the entrepreneurship scene. But when we look at an entrepreneurship process itself, the business process is the most important factor. At Aalborg University, we ensure that these programs involve business faculty teaching business curriculum, with commercialisation and business model perspectives as core elements in the design process, incorporating both corporate and student entrepreneurship.

BUSINESS FACULTY ROLES IN COLLABORATION

There are several important themes to support the innovation process of companies that business faculty can address as part of their research in accounting, finance and marketing, and in business broadly. There are different phases that companies need to go through in the development from ideas to minimal viable products and to making the first sales. Business academics can help companies structure the decision making around these phases. They can also support them in commercialisation by creating business cases around new ideas. Business academics can help companies develop new business models and think beyond the existing industry models as depicted by Gassmann et al. (2014) and Taran et al. (2016), who illustrate how different business model patterns tend to jump between industries over time.

According to Dane-Nielsen and Nielsen (2017), when new business models enter a market, this means that the competitive advantage becomes distinctly different and based on new types of intellectual capital, which in turn affects how to measure the performance of the businesses (Nielsen et al., 2017) and can potentially have vast managerial implications (Lund and Nielsen, 2014). Helping companies to understand these roots through academic insights is a key role for business academics, who can help substantiate business cases, structure finance schemes and ultimately support companies in securing growth and job creation. Fundamentally, this is an important mission for business academics engaging with industry.

COMPANIES REQUIRE RETURN ON INVESTMENT IN COLLABORATION

Doblin[1] has schematised ten different types of innovation (see Figure 1). Interestingly, in the middle of this schema, we have innovation types such as product offerings and product innovation. To the far right of the schema we have innovation types such as engaging customers and developing brands, while on the left we have creating networks and creating profit models. In

FIGURE 1 DOBLIN'S TEN INNOVATION TYPES COMBINED WITH VALUE CREATION

Profit Model	Network	Structure	Process	Product Performance	Product System	Service	Channel	Brand	Customer Engagement
CONFIGURATION				OFFERING		EXPERIENCE			
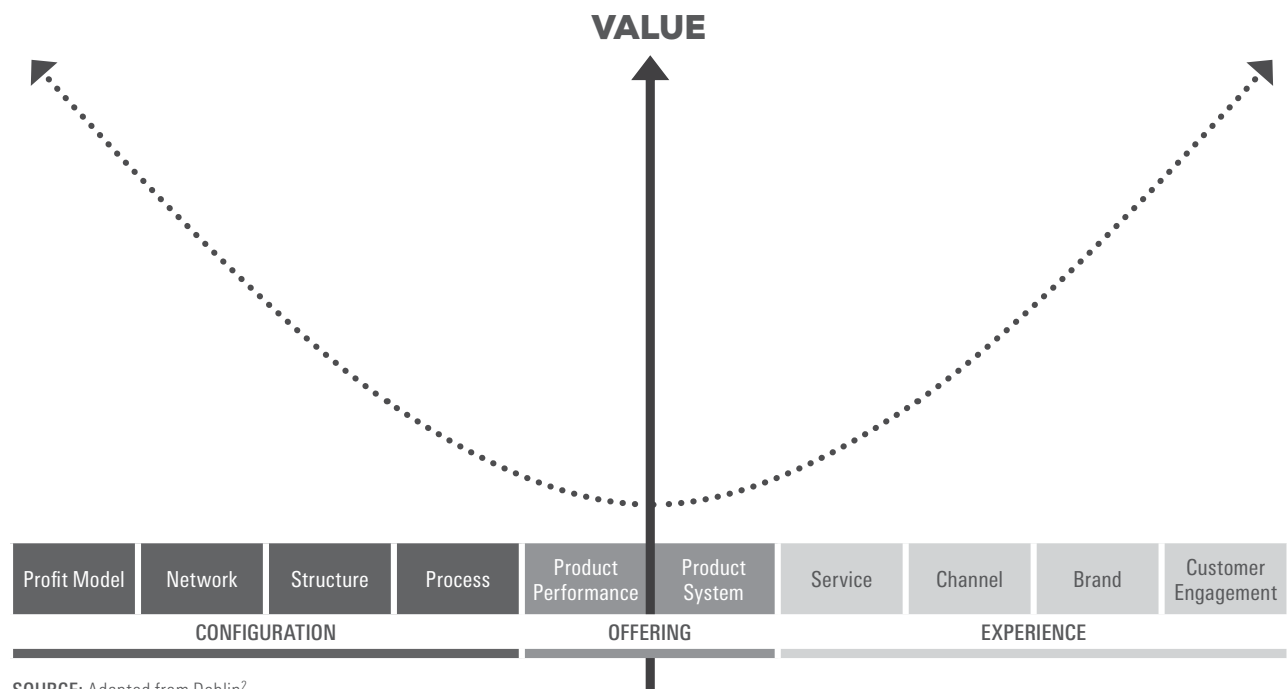
SOURCE: Adapted from Doblin[2]

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1. Ten Types of Innovation, available at http://www.doblin.com/ten-types/, accessed 22 March 2017.
2. Ibid.

reality, when we look at this schematisation, there is space for business researchers on the very left-hand side and on the very right-hand side. This is also the space that has the greatest value creation potential – the innovation type that is the furthest away from the middle.

The value for companies and the value for society is created in those extremes. And that is where business researchers are located. Business researchers thus have a strong case for collaborating because of their expertise in creating business, commercialising innovation and developing business models. While humanities, medical and engineering researchers might help to create new products, what really drives value creation is not product innovation, it is business model innovation, as argued by Chesbrough (2010, p. 354): 'a mediocre technology pursued within a great business model may be more valuable that a great technology exploited via a mediocre business model'. Hence, business researchers should have an obligation to engage in collaboration, because they are a part of the real value creation exercise.

SEVERAL INSIGHTS FROM COLLABORATIONS

Davey et al. (2011) found that personal relationships and mutual trust are important drivers of university–industry collaboration. The question is, however, how we can go about building trust and better collaboration. Our research (Nielsen and Cappelen, 2014; Nielsen et al., 2013; Nielsen, 2016) points towards several insights for successful collaboration in the university–industry setting (see Table 1).

While points one to six are straightforward, academics are not always good at these apparently simple things that make for a good university–industry collaboration. Points seven and eight were rarely present in the collaborations we examined in our research, but were found to be key to achieving collaboration excellence (Nielsen and Sort, 2013; Nielsen, 2016).

At the Business Model Design Centre, we work with addressing these aspects in our project planning, as well as when we discuss creating collaboration with companies. Most importantly, before we start the project, we agree on and align expectations. Not just the timeline and deadlines, but also how many hours we are spending together. For example, are we committing 1,000 professor hours or one professor hour and 999 PhD student hours? Companies also have expectations as to who is involved in a project so addressing these up front is a key success factor for our research centre, along with evaluation.

Evaluation comes from both sides. We evaluate the companies we collaborate with, and we are evaluated by them. We do that on a yearly basis, not by providing a report but through a meeting, a phone call, or an email. If the collaboration has not lived up to our expectations, we say so. In addition, we hold a few social events during the year, inviting the key players

TABLE 1 STEPS TO SUCCESSFUL COLLABORATION

1.	Make sure there is mutual agreement on the ambitions and objectives when commencing a project or a long-term collaboration.
2.	Address the value of the collaboration from the perspective of each involved partner.
3.	Improve the search processes between companies and academics. There is a tendency for companies to flock around the same academics. If the search process is unstructured and solely based on informal networks, this makes it difficult for companies. Even at Aalborg University, for example, which is rather small, companies do not know who to contact.
4.	Assess each other during the partnership not only towards the end of the project or collaboration.
5.	Make realistic aims that all parties can buy into.
6.	Make sure the planning is flexible.
7.	Address the issue of the companies' ROI of their time and effort.
8.	Continuously evaluate the collaboration.

who make a genuine difference to our research. The invitation list for these events is carefully targeted and based on not only those with whom we already work but also those in the category 'We want to work with you, but we haven't yet'. In the first few years of the Business Model Design Centre we wanted to collaborate with everyone but we have learned to evaluate carefully to avoid 'time-wasters' – there were many of those. It is important to focus energy on developing relationships with genuine collaborators.

Currently, academic life is focused on performance measurement based on publications and citations. Many academics spend roughly 60% of their time on teaching and administration and 40% on research. This leaves little time for activities not measured directly by a university's performance measurement systems (PMS), like developing relationships and collaborating with industry. To create incentives for academics to develop university–industry collaboration, it is important that universities develop different PMS and measures, for example, impact on business opinion policy making, innovative teaching, collaboration and engagement. While the ability to challenge and change companies is not easy to measure, it is possible

to create narratives. To make meaningful change, universities need to reward academics for the time spent in developing collaborations with industry.

MEASURE BOTH PROCESS AND OUTCOME SUCCESS

When collaborations are measured, they must be measured according to two dimensions: process success and outcome success (Nielsen et al., 2013). In terms of process success, when our research project looked at value exchange, it found that value exchange was lowest in the final evaluation and reporting phase (Nielsen and Cappelen, 2014). Academics tend to think that knowledge exchange happens when a paper is published, however, our project indicated that this is where the value exchange is the lowest. Engaging continuously with the company is important, regardless of whether a project is for six months or six years, because it is in the interaction that the learning takes place. That is where the companies get value for their money. It might just be a 15-minute talk at the board meeting, or at the staff meeting. It might be that email; it might be the text message stating: 'Hey, did you see what I wrote about you on LinkedIn?'

TABLE 2 A PERFORMANCE MEASUREMENT SCHEME FOR UNIVERSITY–INDUSTRY COLLABORATIONS

	PROCESS WINS	ACHIEVING OUTCOMES
Internal collaboration	• Ensure that project deadlines are met • Satisfaction among university–industry partners • Communication and feedback between university–industry partners	• Measure of achieved innovativeness • Aligning expectations with outputs • Usefulness of project outputs for industry
Scientific image	• Process creates new knowledge • Data are reliable and valid • Number of conference presentations	• Impact of published articles and books measured as citations • Number of publications • Ranking of publications according to academic lists
Financial and administrative constraints	• Hours invested in the work match objectives • Communicating with administrative functions • Minimising overheads	• Average project cost compliance • General performance evaluation • Cost–benefit of invested time
Funders' peace of mind	• Administrative leadership • Effective contact with funder (relation management) • Funder feedback and follow-up	• Meeting project deadlines • Project success score evaluated by funders • Meeting project goals and quality requirements

SOURCE: Adapted from Nielsen (2016).

In terms of outcome success, there are four factors illustrated in Table 2: internal collaboration; scientific image; the constraints of administration and finance; and satisfying the funders. Together, the two dimensions of process and outcome create a table with eight fields. Most universities already measure several of these areas. However, Table 2 also indicates that areas that academics traditionally are good at measuring, are probably of least interest to industry. For example, academics' PMS look at the number of papers written, but the impact of the published papers might be hard to verify. Academic organisations are also good at measuring outcome success according to the financial aspects and also the processes around budget and milestone deviations. However, many of the other fields are left empty. In a European context, Davey et al. (2011) found that creating personal relationships and mutual trust are important enablers of university–industry collaboration and these ideas are furthered by Nielsen (2016), who suggests a PMS for university–industry collaboration around four dimensions. These are depicted in Table 2, along with the dimension from Nielsen et al. (2013) depicting the differences between process and outcome success. This PMS for university–industry collaboration provides a set of relevant performance measures that have the potential to become levers of management for these activities.

FIGURE 2 STAKEHOLDERS IN THE BUSINESS MODEL DESIGN CENTRE

Stakeholders in business research

INDUSTRY AND BUSINESS INTERESTS

RESEARCH AND TEACHING

ORGANISATIONS AND COMPANIES

EXPERTS AND RESOURCES

STUDENTS

ILLUSTRATIONS OF VALUE EXCHANGE (WITH STUDENTS) IN PRACTICE

This section provides three practical illustrations of how business research can be integrated with research projects with companies. There is one stakeholder group that is important and is not often discussed: students. Here are several illustrations of how companies and students become resources in ongoing research processes, as well as ideas for utilising students as resources, which can enrich the research process. The three examples of value exchange are from the Business Model Design Centre. All of the teaching done at Aalborg University is essentially founded on problem-based learning. This means that in a standard Master's degree at Aalborg, about 50% of the coursework is project based and most of this includes some sort of interaction with industry. In a semester, the students will typically attend three courses. In addition to this, they will work on a problem combining the three courses and simultaneously engaging with a company. That means that thinking about collaboration comes naturally to Aalborg students. It also provides the University with a platform for moving from research-based teaching, into teaching-based research (see Figure 2).

In order to ensure that research creates value it is necessary to consider the value proposition between the partners is embedded into teaching and collaboration structures. There are five types of stakeholders involved in our research and teaching at the Business Model Design Centre. First, there are academics who contribute with teaching and research. Second, external experts or resource persons, for example, someone who is trained in a distinct methodology, or teaches a specific perspective of looking at business, or is from industry, are relevant to the research. Third there are students. The fourth category of stakeholders is the organisations and companies that enter into this context as cases and, finally, there are the industry, business and government stakeholders. Governments in Scandinavia are quite active in assisting companies to improve their businesses, especially small to medium enterprises.

The teaching methods applied in this setting are highly interactive and, as with most teaching at Aalborg University, we apply problem-based learning (Kolmos et al., 2006). The way we practise problem-based learning in interaction with the five stakeholder groups strongly resembles the design-based teaching approach applied at d.school at Stanford University.[3] In the Business Model Design Centre, all five stakeholder groups are considered in the design of teaching so that there is a value proposition present for all involved partners. Finally, in order to ensure the link to our research, effort is spent on documenting processes and outcomes. The following are examples of how our research has been helped by these processes.

Example 1: New Venture Creation

New Venture Creation is an entrepreneurship course with over 80 students. It is a full semester course that spans all faculties at the University. The students enter the program with an idea, which they build on for half a year with the aim of creating a business opportunity. Approximately a third of the activities is teaching, and two-thirds are project work. The course includes teaching in creativity, opportunity spotting and business models and, in addition to this, the students are also taught business cases, financing and how to pitch business ideas to business angels. An example of published research coming from this course is the recent paper by Lund et al. (2017), which develops a typology of creativity variables and a typology of business modelling variables that can be trained separately, but have different touch points in the phases of a start-up venture.

Example 2: Business Models and Strategic Reporting

I taught this course on business models and strategic reporting and I am particularly interested in testing ways to facilitate the Business Model Canvas (Osterwalder and Pigneur, 2010). In addition to my teaching, the whole session was recorded by a video crew hired by the company to document the outcome. After my presentation, the CEO of a local company working with robotics presented the company's vision, mission and strategy. This company was interested in exploring a potential new value proposition related to a fresh Internet-based strategy. Its objective was to explore how this would affect its business model and to get ideas for further analysis. After the presentation, the whole class worked through the process designed

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3. https://dschool.stanford.edu

for the day. In this instance, we were interested in testing the combination of a new facilitation methodology for the Business Model Canvas. Twelve groups worked for about two hours, documenting the process thoroughly. We finished the session by pairing the groups and having them discuss their results. The CEO listened and joined in the discussion with several groups. At the end of the discussion session, we gave the groups 45 minutes to do a two-minute video pitch. The company received all 12 video pitches in addition to the documentation and at a later date used this material for a marketing video.

Example 3: The Business Model Buzz

The Business Model Buzz is an annual workshop dedicated to experimenting and testing the latest applied methods for designing business models. In the 2014 event we had over 50 participants taking part. The participants were researchers, students, consultants and business people, all with an interest in business models. The approach to the workshop is as follows. The presenter communicates a new method or tool, instructing the participants on how to work with it. The participants then work on a specific business case using the given method or tool. The entire session is documented. The four sessions used the following methodologies.

1. 'The Idea Game', which generates ideas and builds on the Business Model Canvas. It helps to tease out radical ideas, which we try to push forward using a set of diverse creative triggers.

2. 'Lego Serious Play' is used in this setting because, by engaging in a specific problem with your hands, the cognitive side of the brain is triggered. Building problems and potential solutions tends to generate more ideas and, after a while with the building process, participants can start to tell stories. When participants tell the story, they tell much more than what they knew while they were building.

3. In the 'Headlines of Tomorrow' methodology we practise telling the story of the business model using visualisation techniques in the form of the front page of a newspaper and talk about how development of the business model could look moving towards a three-year horizon.

4. In the session 'Screen Versions of Business Models' we are telling stories by making movies. This is a powerful tool for prototyping business models and

will help effectively communicate the core value proposition of the business model. The result of three and a half hours of movie making was four powerful movies about the cases presented to the groups.

In the Business Model Buzz, there were several types of students present. There was a student sitting in each group with a laptop, who was writing a project about that particular case. There were students present helping to film and document the whole day. That was their semester project. There were also some students who were applying visualisation techniques, making drawings and cutting out props for the screen play movies. That was their semester project. The researchers were able to work with companies that joined the event as live cases – cases that we were working with anyway – and this event meant 50 people engaged in these cases using a variety of methods. Some methods were already developed, which we were interested in learning how to facilitate properly, for example, 'The Idea Game' that sits atop the Business Model Canvas (Osterwalder and Pigneur, 2010). The facilitation was documented, so we were able to observe improvements and things that still did not work in the processes. We also used methods that were completely new and we were able to test whether they worked as anticipated. The 'Headlines of Tomorrow' was such a new model we have not used it again since, while the 'Screen Versions of Business Models' has led to publications such as Nielsen et al. (2017) that links business models to performance measurement and Lund and Nielsen (2014) that narrates a longitudinal business model innovation process.

CONCLUSIONS

This paper has discussed my reflections on how academics can engage with companies and how companies get value from collaborating with academics. The discussions have been based on the insights I have developed based on my experiences with the Business Model Design Centre at Aalborg University over the last six years. My experiences – and a research project undertaken at Aalborg – suggest that we need balanced measures to reflect the value propositions towards the companies with whom we engage in university–industry collaborations.

We need to revamp academics' incentives to encourage more academics to engage in university–industry collaboration. We also need to educate academics on how to work with companies. Finally, we need to turn this company interaction into a resource by contemplating how to create reciprocal value creation between all the potential stakeholders. Then we will have genuine, meaningful university–industry collaboration.

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Initiatives for Transitions: Opportunities and Initiatives for 2020 and Beyond

TIM FAWCETT

Recent studies have shown that Australia is a comparatively poor performer when it comes to global research commercialisation rankings and has low levels of research commercialisation and industry engagement (Davis, 2015). The aim of this paper is to explore the issue of how to improve Australian collaboration and innovation between researchers and business.

This seemingly poor performance is a drag on the Australian economy and will have a medium- to long-term impact on national income levels and living standards compared to other countries in the Asia-Pacific region that are using innovation as a driver of productivity and growth. It is therefore in society's interest that we find a way to lift Australia's innovation and collaboration performance.

There is a tendency when thinking about ways to improve collaboration between the research sector and the business community to focus on the seemingly insurmountable differences between the two disparate groups. For example, structural issues in the research system, such as incorrect incentives that do not reward commercialisation of research, but rather reward 'publishing' or risk 'perishing' (Davis, 2015). Australian businesses have also attracted criticism for being too risk-averse, lacking entrepreneurial spirit or vigour, and not possessing the skills or capabilities to develop and get new products to market (Office of the Chief Economist, 2014).

However, there are examples of strong collaboration and innovation that have seen many successful partnerships between researchers and businesses thrive. These partnerships have been built on a mutual trust, which is based on an understanding of the value to be gained by each party, a willingness to consider innovative partnership arrangements, and a concerted attempt by both groups to move past transactions and create relationships.

This paper will examine several of these partnerships and attempt to define guidelines that, when used, can contribute to building more successful relationships between the research and business sectors.

WHY IS THIS IMPORTANT?

Public commentary is full of headlines and buzz words about productivity, the innovation boom, the National Innovation and Science Agenda and state government equivalent policies and programs.

The Victorian Government has invested in an innovation and startup infrastructure support body called LaunchVic, which is focused on the interaction between the research and business sectors. Also, there have been discussions about job displacement as a result of technology advances such as robots and artificial intelligence and the role of globalisation in accelerating the decline of manufacturing jobs (while seeming to undervalue the transition to services industry jobs).

There have been attempts to identify the industries and jobs of the future and to try to work back from a future point to determine where we ought to invest our limited public and private sector resources (CEDA, 2015). This focus on jobs for the future is important to work, something Chartered Accountants Australia and New Zealand (Guthrie et al., 2015;

Burritt et al., 2016) have previously focused on, and this debate is becoming increasingly important, especially when some have suggested that 'innovation' is seen as a negative by sections of the community, as it equates to job losses (Korporal, 2016).

Roy Green and Renu Agarwal (2017) from the Business School at the University of Technology Sydney explore the issue of why productivity improvement is significant for Australia and why innovation is key to its growth:

> Whatever measurement tools are adopted, productivity-enhancing reform will be a key driver of long-term growth and jobs. It will enable us to compete globally not just on cost, which promotes a self-defeating "race to the bottom", but on quality, design and innovation as the framework conditions of a high wage, high productivity economy.

Green and Agarwal (2017) also quote US Federal Reserve Chair Janet Yellen who canvassed that the issue of tackling economic and productivity growth requires a broad field approach to public policy solutions, not simply relying on monetary policy:

> Though outside the narrow field of monetary policy, many possibilities in this arena are worth considering, including improving our educational system and investing more in worker training; promoting capital investment and research spending, both private and public; and looking for ways to reduce regulatory burdens while protecting important economic, financial, and social goals.

Green and Agarwal (2017) cite a report from the Chief Economist of Australia, which notes that innovation-active businesses are 40% more likely to increase profitability, twice as likely to export, and two to three times more likely to demonstrate higher productivity and employment.

Yet, as outlined earlier, innovation is attracting negative attention, just like productivity did in the past. Not so long ago, productivity was viewed suspiciously, as a ruse to make people work harder rather than working smarter. Now, innovation is resisted on the grounds that it destroys jobs altogether. This may be so in individual cases, but innovation also creates jobs and has done so historically (Green and Agarwal, 2017).

Peter Harris from the Productivity Commission has been leading a series of Productivity Commission reports on these specific issues, including a recent paper on the use of data and the value of data (Productivity Commission, 2017). The Productivity Commission is focused on the digital economy and regulatory reform, and how Australia can promote that to capture the benefits and manage the downside risks.

Green and Agarwal (2017) conclude:

> To be credible, a new productivity agenda will have to ensure that the gains from innovation are shared systematically across the workforce and society, rather than accumulating in a few hands. This is the lesson of populous revolts over centuries, including the current examples occupying the world's attention. A new agenda will require a new social contract.

'A new agenda will require a new social contract' is a key issue. When we think about collaboration to drive innovation, productivity, economic growth, job creation, new businesses and wealth creation, we will need a new way of thinking. Traditional social contracts and institutions no longer meet the requirements of modern economies. The notion of a new social contract – or a 'social licence to operate' – is important.

In a world that is shrouded in regular uncertainty, citizens will demand more from their leaders in politics, business and community, and social enterprises. All groups – big corporations, research institutions, the higher education sector, our political leaders and parliamentarians state and federal – have a responsibility to find new pathways. Viable businesses and other organisations should be the centre of this social licence to operate. Recently, the Australian Banking Association took out full-page advertisements in the main daily newspapers in order to tackle the issue of their licence to operate following damaging public inquiries into their conduct and treatment of customers. Also, the current Australian Treasurer, the Honourable Scott Morrison MP, has stated he wants more FinTech investment in Australia. While banks are certainly investing in FinTech companies and capabilities, they recognise that they will have to do more to repair a damaged reputation and low levels of public confidence and trust. Banks are still making billions of dollars in profit, but if they want to avoid royal commissions into their industry, or significant 'special taxes', and so on, they need to start thinking about the impact their business activities are having on citizens and customers and the way that they are viewed by their political representatives. The possibilities of a new social contract and a social licence to operate are important for Australia's future.

WHAT IS THE BIGGEST PROBLEM STOPPING COLLABORATION?

The company I work for, Cisco Australia Pty Ltd, has recognised the need to help support several economic, social and political challenges that Australia and New Zealand face. With this in mind, Cisco has developed a plan to support the transition to a digital economy. The plan focuses on three pillars: human capital, or skills, in particular STEM skills; healthy community, that is, the way people are using the internet and technologies to improve their lives; and what Cisco calls the 'innovation economy', which relates to our digital capability–building investments and our interest in new jobs and new wealth creation using digital platforms.

Cisco's plan recognises and responds to the broader impact that we have on society, both positive and negative. For example, Cisco supplies technologies that disrupt traditional business models and ailing companies to change their business models. In some cases, this may result in job losses or job shifts that can impact people's lives significantly.

Ultimately it is the customer who is deploying technology to improve value for business and shareholders. But we know that we are part of a process that is creating new value and destroying old value, including jobs. So, we ask questions such as, what are we doing as a company to capture those people who are being displaced by technology, or globalisation? What are we doing to help support them?

With few exceptions, the biggest barrier I see to collaboration between the higher education sector and corporate Australia is the issue of trust. We don't really know each other well because we don't interact – there's no structured way to interact, or it is informal, or ad hoc – and therefore we fall into stereotypes. At the risk of alienating people, academics think of corporations as greedy, economy-raping organisations that are only driven by profit motives. That might be partly right. Corporate Australia thinks of academics as pointy-headed, ivory tower naval gazers who aren't accountable to anyone and who aren't responsible for anything other than publications. Those are the stereotypes, and if you don't know each other, it is hard to trust each other. And if it's hard to trust each other, then collaboration will be impossible.

How can we build trust if we don't have structured processes? There are plenty of examples where relationships have been established, where trust can be established, and where it works extremely well.

Now I will explore several cases of Cisco's collaboration with the higher education sector to highlight how this might happen.

The first case, I am an Advisory Board member at the University of Melbourne's Melbourne Network Society Institute, formerly IBES – the Institute for a Broadband Enabled Society. One of the things we were interested in there was the way in which the Institute was using multidisciplinary or cross-disciplinary research to determine the impact of the National Broadband Network, high-speed internet, digital platforms and technologies more broadly, in society: on healthcare, education, public transport, job creation, citizen engagement, citizen services.

A project we embarked upon in partnership was undertaking a joint event. This was not just for Cisco: many other technology companies were involved, some of whom we compete with. It was part of what the Federal Government called 'International Telework Week', and it was an excellent example of a tripartite partnership. The Government had set policy – the National Digital Economy Strategy – which included 12 goals, one of which was to double the number of people who were teleworking or working remotely in the Australian economy by the year 2020. The Government set up a couple of advisory committees and invited industry to come on board; it roped in academia as well, and we all got together and produced this excellent week of events to promote teleworking. The Prime Minister attended, as did several state and federal ministers, in addition to a number of senior executives from private sector companies. It was held at The University of Melbourne campus, and it was a fabulous example of the way that government, universities and business can bring parties together, develop trust, and create an impact.

The second case was research we commissioned with The University of Auckland and The University of Melbourne around the impact of telework on productivity. As a company, we could see that our customers were utilising our collaboration platforms, and benefiting from it. They saw productivity improvements from their staff, or their employee retention rates were improving. The staff at Cisco who are working remotely are consistently our best performers, partly because they are excellent employees and partly because they really value their relationship with us. The University of Auckland and The University of Melbourne undertook the

research at arm's length from us. We funded it, helped shape the scope of the project, but the research was independent. It was an interesting learning process for us, about the way that universities undertake research projects, the ethics that are involved, the barriers that are in place, and the amount of time it takes to conduct research. In the end, Cisco was satisfied with the research and insights generated by it.

In terms of our experience, I remember sitting at a Business and Higher Education Round Table (B/HERT) dinner, next to a senior executive from a large Australian telecommunications company. He said, 'How much did that cost?' And I told him, 'About 30 grand.' 'Really?,' he said. 'When we do something like that, we give about 300 grand to a Big Four, and they produce a really glossy brochure for us, and a bit of media, and then it disappears.'

The third case, which is also of interest from a business school perspective, is our partnership with the Centre for Workplace Leadership, again, at The University of Melbourne. We were asked to be a partner in the Centre for Workplace Leadership. The Vice-Chancellor's office drove that engagement with us. It was Vice-Chancellor to our Vice-President. The University of Melbourne won the government grant. Our interest was less about selling more collaboration platforms, and more about how the managers of tomorrow are being taught about distributed workers. For us, this was a key area, educating new managers through business schools about having a distributed workforce.

The fourth case is our partnership with The University of Newcastle, and the notion of universities as conduits to the community. The University of Newcastle is an example of this because they are looking to become far more immersed in the community of Newcastle, particularly through setting up a campus operation in the city of Newcastle. This was of interest to us. How can university campuses be much more connected? The relevance for Cisco is that we have a technology called smart and connected communities or cities – smart transport, and wi-fi connected this, and driverless vehicles, and so on. But it is hard to do on a big scale, for example, on a scale the size of the city of Melbourne. It is much more achievable in a city like a

university. A digital campus is like a small city. That was a methodology for us to be able to work out what the challenges were around developing a digital city.

The fifth case in which we have forged partnerships with the research community involves innovation centres. Cisco has invested in two of these in Australia: Curtin University, which focuses on mining and resources (in partnership with Woodside Petroleum); and the other in Sydney with The University of New South Wales, with the NSW Farmer's Federation, Data 61 and CSIRO as partners. These innovation centres are unique for Cisco. Globally, we set these up, and we like to own them and control them. In this sense, Australia is leading the world in a different model – Cisco Australia is – by making us just one player in a management committee. That has been an interesting process in itself.

The sixth case is as a member of B/HERT, which we see as an excellent opportunity to build relationships and trust at senior levels of the academic and higher education communities. Our Vice-President is also the President of B/HERT.

The seventh case is as a board member of the Diversity Council of Australia. Diversity in our sector is a challenge, particularly in technical areas. We have pipeline issues about the number of women who are coming through STEM courses and STEM degrees. We also have structural problems that we can fix very quickly, including the way we hire people, focusing particularly on gender diversity. We have partnerships with five universities to do mentoring, particularly focusing on schools of engineering, and mentoring students through Cisco executives. 'Mentor Me' is carried out in group sessions, some remote, and some on campus or in our offices around Australia. This initiative has been successful, and it is another example of a great partnership.

The eighth case involves the Australian Cyber Security Research Institute at Edith Cowan University, and a number of other universities around Australia. A fantastic example of another partnership is that of Optus, which has linked with Macquarie and LaTrobe Universities to conduct cyber security research. Optus has entered into a number of partnerships with Macquarie and LaTrobe to focus on cyber security research, but also cybersecurity education.

THE KEY TO SUCCESSFUL COLLABORATION

Now, what are the lessons that have been learned from these various case studies? They are as follows:

1. **Start from a position of 'Yes'.** What is our common goal? Yes, we have finite resources – higher education and corporate Australia – but let's continue the discussion and see what we can do. Find the common goal and keep the discussion going.

2. **Leaders need to be engaged**. Leaders will make sure that the right people are on the project to help drive it. Budget discussions can take place down the track. If leaders agree there is a shared vision and a common goal and the right people get allocated to the project, the chance of success is greater.

3. **The worker bees must be empowered to drive the result.** You have to have people, and they need to be incentivised to get results.

4. **Find ways to build trust**. Hold workshops to plan the project or the engagement. Dinners in the Vice-Chancellor's residence are very powerful, both symbolically and in terms of building trust.

5. **Invite speakers.** Universities can invite corporates in to speak. And corporations can invite universities in. It sends a signal to staff in a company that 'We have a partnership with this higher education sector, and are collaborating to try and achieve something together'. That flows through an organisation.

6. **Don't undervalue or overvalue brands.** There can be a touch of arrogance on both sides, and that ought to be avoided at all costs.

7. **Think outside the square.** Use your networks. Whether it is LinkedIn or some other social media, for me this was an example of the power of my network in being able to access data scientists straight out of university.

CONCLUSION

In summary, I have identified the key barrier to collaboration – a lack of trust – and I have identified several cases of how we can bring about change, and given some examples of where collaboration between academia and business is working. This is a fundamental issue of vital importance to Australia and New Zealand from both an economic and social perspective.

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Creating a University–Industry Collaboration Framework into the Future

PHILOMENA LEUNG

This article analyses the input and insights of the open session of the Thought Leadership Forum held by Chartered Accountants Australia and New Zealand and RMIT University in February 2017 and offers a framework for university–industry collaboration that addresses the present environment and future needs of the accounting profession and academe. The article draws upon the discussions of challenges and the different strands of issues as offered at the Forum, with a view to consolidating matters for consideration about collaboration, for research and in the management of academic matters for universities and industry.

How can academics, professional bodies and industry (business, not-for-profit organisations (NFPs) and government) enhance collaboration (Burritt et al., 2017)? We know that collaboration has immense value but to realise that value we have first to understand what collaboration is and what particularly is it about the collaboration that creates that value. Is it a frame of mind? Is it education? Is it about building models? Is it about leadership? This article will draw on the panel discussion at the 2017 Thought Leadership Forum to develop a greater understanding of what collaboration is, how people have experienced collaboration and how those understandings and experiences can improve collaboration into the future. First, this article will outline several challenges for university–industry collaboration. The thoughts and examples arising from the panel discussion were consolidated and presented using four themes: disruption; public interest; innovation; and impact. It is argued that while disruption continues to occur in all walks of life,

these themes can be distilled as a critical disruptive cycle that highlights the importance of and need for collaboration, thus developing a framework that may lead from disruption into creating value and impact.

CHALLENGES

Undoubtedly there are challenges for university–industry collaboration, and it is important to identify these as a basis from which we can build. These challenges have been discussed both at the Forum and throughout this publication and are summarised as follows.

1. **The frame of mind.** We act according to our 20, 30, 40 years of experience in the past. How are we going to address the future using that same mindset? Our priorities are different (Burritt et al., 2017) and using the same model of understanding may not be conducive to the adoption of a collaborative mind.

2. **Mutual respect.** The level of trust between universities and business is key to the future. As priorities and objectives between universities and industry differ, there may be a lack of mutual understanding and respect to enhance the relationship between them.

3. **Clarity in expectations.** Universities talk about collaborating without fully identifying with all parties what is expected of the collaborative enterprise (Nielsen, 2017). There are also different priorities and expectations between various types of academics – those who are keen to strive for rigour and those who create value that is relevant to society in both application and practice. There is,

therefore, a tendency amongst academics that such expectations of the collaborative enterprise are beyond the norm, and they are unclear about how collaborations may assist their own academic goals.

4. **Different kinds of language.** Businesses speak a language with an expectation of instant action, which is focused on output. On the other hand, academics are focused on building a capability that may take a number of years. There needs to be some common language established in which both business and academics think outside the box (Winocur, 2017; Christ and Burritt, 2017). The objective of creating value and social progress, especially in accounting, appears to have been subsumed in the focus on technical knowledge.

5. **Systemic issues.** Issues such as legal boundaries, intellectual property, work patterns, workload models, measurability of performance indicators, time horizon, a relatively narrow scope of capabilities (and the past experience) of academics, are factors inherent in universities. Systemic issues also relate to the lack of clear empowerment of boundary spanners (Dawson, 2017).

6. **Innovation expectations.** What academics mean by innovation and what business means may be two different concepts. This difference is accentuated by silos, boundaries and, of course, the ivory tower perception. The challenges and structure of academia may seem impenetrable to business (Brewer, 2017; Cooper and Guthrie, 2017).

To enhance collaboration, we must address the underlying perceptions of these challenges. In order to do so, the discussion now turns to the four key themes outlined above so as to provide insights on these themes, to contextualise university–industry collaboration. It uses quotes from those involved in the Forum discussion to illustrate and highlight the issues.

DISRUPTION

We cannot use the same language to talk about the future anymore. That is the starting point, but is disruption needed? Do we need a Donald Trump within the academic world?

Academics and business at present are entrenched in their seemingly incompatible roles. While collaboration takes place in pockets – and these are expanding – there is no holistic framework for collaboration between universities and industry. Perhaps what is needed is akin to an earthquake to produce a seismic shift in our approach. At present, many academics are resistant to the idea of being involved with practice. While some are focused on relevance, others emphasise rigour. Those focused on relevance are particularly interested in the academic–practitioner interrelationship (Christ and Burritt, 2017). This is a recent phenomenon and a step in the right direction towards collaboration. However, much of this interest in practitioner relationships is driven by university bureaucracy, which sees it as a source of revenue.

> You can see Deans around who can see money coming in from businesses, and that is quite attractive to them as another source of student money. But in a sense, I don't think their heart is in the right place. They

probably want to make these connections with practitioners for the wrong reasons. *Roger Burritt, Australian National University*

In terms of rigour, these academics are focused on methodology, having a sound theoretical foundation for their work. While this is, of course, profoundly important, it is not of particular interest to practitioners.

> [These academics] don't care what practitioners do. They want to improve society through their own mechanisms. *Roger Burritt, Australian National University*

As these two types of academics seldom agree with each other's approach, how can we expect them to conduct meaningful conversations leading to collaboration with business? How do we get the traditional scholars, focused on theoretical rigour, to talk to the academics focused on relevance and practice? And then how do we get them both to talk with practitioners? This is where we need disruption – to refocus and realign academic and university research activities.

At the same time, academia is being disrupted, and so the dichotomy between rigour and relevance, may, in fact, be a false dichotomy. Academic disruption takes similar forms to the disruption being seen in many sectors. It is driven by technology, by changes in the workplace, by changes to the professions, and by changes in student cohorts and their expectations. In the case of business schools, the flow of international students has resulted in changes in modes of teaching and workloads (Burritt et al., 2010; Guthrie et al., 2011, 2015, 2016). Academics are grappling with these issues while attempting to prepare graduates for the challenges they will face in the future.

> There are changes in the way that accounting is being taught. Many universities are hearing the firms saying that a minimum attribute is that you are going to be technically trained and the soft skills are just as important. These need to be taught in the accounting faculty. *Mark Jones, Chartered Accountants Australia and New Zealand*

Part of the problem is that we are teaching graduates the wrong things in accounting, or not the right things. We are missing some of the skills, like strategy and alternative dispute resolution. A lot of academics in accounting maybe anecdotally have not practised in accounting, maybe they can't talk to some of the industries that they deal with. *Duncan Honoré-Morris, Australian Catholic University*

Students will themselves become either academics or practitioners. They are the future generation of the profession. Hence, the profession itself relies on education for its future.

> If universities teach students a narrow range of issues, and don't appreciate the perspectives of the humanities, the arts, the social sciences, the natural sciences, how will they progress into the future? *Roger Burritt, Australian National University*

Of particular relevance to this discussion is the disruption to academic boundaries, which have been eroded much more in recent years. This breaking down of boundaries is variously termed 'interdisciplinarity', 'disciplinarity' and 'multidisciplinarity'. In their essence, these terms have similar objectives: academics from different disciplines working together. In the case of accounting, this may mean, for example, engineers and scientists (Christ and Burritt, 2017). However, extending these concepts even further, in a way which answers to some extent the call for collaboration, is the notion of 'transdisciplinarity':

> Transdisciplinarity goes beyond interdisciplinarity; it goes beyond multidisciplinarity ... it takes people in practice, and it adds them to the research process. That is absolutely essential for transdisciplinarity. In addition, it uses interdisciplinarity. If it is a water issue ... a few meteorologists here, a few accountants there, a few management people; it brings them together. So for me, transdisciplinarity is the way we should go in the future. By bringing together, for example, natural sciences and social sciences, practice and the professions we can solve so-called 'wicked problems' – very complex problems. *Roger Burritt, Australian National University*

Recently, I was in Sri Lanka as the Ernst & Young professor working in a university and collaborating with the business community. I learned a lot from them and from the developing country context. Students graduating from the university go to industry. When they go to the industry, they do not cut their links with the university. They come back to the university on an annual basis and discuss industry problems, then they get together and try to impart that kind of knowledge to the present cohort of business students in the university. They hold annual forums, discussions, workshops, and so on, linking to real-life problems in industry. By developing long-term relationships with the university, graduates help the university to re-learn. *Prem Yapa, RMIT University*

Just as universities face digital disruption and the need to meet the challenges of the future, so too does business need to adapt and innovate. It is here that relationships with universities become not just important, but essential.

Business needs what the university has to offer because they won't succeed unless they innovate. *Sharon Winocur, BHERT*

… the firms and the accounting profession are being disrupted … a conversation with an audit partner in [a Big Four firm] … and he was saying they now have robotic software platforms that are doing all the work that the accounting graduates used to do … If I am going to take on graduates, what are they going to do? … At the moment [the profession] is winging it. If we don't get graduates, who are going to be the partners in the future? They have enormous off-shoring, and what they are doing is pulling in the very best of those people, and seconding them to offices all around the place to give them that broad experience, so hopefully they can go on and potentially become partners – they don't know what it is at the moment. *Mark Jones, Chartered Accountants Australia and New Zealand*

Disruption does not only occur in academe and business, including the public sector, and not-for-profit organisations (NFP):

… the workers at the moment are one of the key groups being disrupted, and to take that as a minor issue would be a disgrace for us all. *Roger Burritt, Australian National University*

Disruption is, therefore, felt everywhere. What does that mean, however, for university–industry collaboration? We have identified the disruption in academic practices such as student-oriented workload, research focus, and so on, where many academics are not trained or rewarded in embracing a broadened scope of engagement responsibilities, other than undertaking research and teaching.

As indicated in the above conversation, Australian accounting education has not been successful in producing future accounting leaders to shape the profession. The conversation also suggests that many technical accounting functions are no longer required of graduates. Businesses, including NFP organisations, struggle with the impact of technology, outsourcing and changes in business models. Unemployment has resulted in many parts of the world. Though the new digital disruption may deliver a lot of new jobs, there may not be jobs for everyone, particularly when the individual is slow to adapt to new thinking and new skills. Society has traditionally been built on a mindset that individuals go out to work, and it is at a loss as to how to address the impact of disruption. We, therefore, need to reflect on the expectations and role of accounting. Accounting has changed. We need to delve into the fundamental value of accounting, and indeed, its language used in its interaction with society, in order to bring changes.

Accounting can perhaps do something about that. We are looking after the workforce in that sense, or perhaps considering other options that might exist … and leave a better life for everyone. *Roger Burritt, Australian National University*

PUBLIC INTEREST

Alan Lowe, RMIT University stated:

> … what bothers me a little bit, is the public interest – it's losing sight of the public interest …

The public interest can be regarded as the cornerstone of accounting. It is defined by the International Federation of Accountants (IFAC) as the net benefits derived for, and procedural rigour employed on behalf of, all society in relation to any action, decision or policy. The definition enables us to assess the extent to which actions, decisions or policies are made in the public interest. The public interest is central to accounting and the accounting profession, and solidly locates the role of accounting in society. The IFAC definition continues to provide a means to assess the extent to which any action, decision or policy is in the public interest. Two assessments are identified. The Assessment of Costs/Benefits evaluates the subject matter in terms of costs and benefits; while the Assessment of Process evaluates the subject matter as a process, that is, an undertaking that reflects the qualities of transparency, public accountability, independence, adherence to due process and participation that is inclusive of a wide range of groups within society.

Two issues stand out from the above IFAC explanation of the public interest. They are the assumption of measurability in regard to costs and benefits, and the language, used in accounting's broadest sense, in displaying qualities such as transparency and accountability in the process. Both aspects concentrate on the means of accounting, and not the end, which is the public interest itself. In other words, accountants have focused on the processes and the methodology, and they risk losing sight of achieving the public interest.

Working with industry and a focus on the public interest can seem like different objectives. Academics consider the public interest – or contributing to the body of knowledge – as their mission, which can conflict with the perceived mission of business to provide returns to shareholders, thus resulting in opposing mindsets. Compounded by the emphases on different processes and methodology, such as the cost/benefits of research time and resources spent, and the value to the individuals and the organisations concerned, collaboration has become unlikely.

So how can we broaden the mindsets to allow the appetite for collaborations? Promoting the dialogue between academics and business on a common aim of the public interest is important.

THOUGHT LEADERSHIP

At its most basic level, thought leadership requires the leader to be a recognised authority on a particular topic or specialised field of endeavour. The thought leader may be called upon to respond to a particular problem or set of issues confronting a firm, industry or society. Academics have an important role in exploring the public interest and thought leadership and to educate.

Academic thought leadership is occurring; however, professional associations can exercise thought leadership in another, more critical way. That is, they can use their resources to (i) identify key public problems of the day – social, economic, environmental, political, (ii) take the lead in systematically investigating them, and (iii) offer possible options or proposals for remedy. The problems of climate change, sustainability, inequality, governance and accountability immediately come to mind. Whereas the perspective of the profession would be essential, such problems usually call for interdisciplinary approaches and contributions.

For instance, the discussions touched on various forms of sustainability, and the Forum participants were quick to identify the scope of the accounting discipline that has indeed embedded sustainability issues such as Integrated Reporting, and social and environmental accounting. The disruption that is described:

> … is really about disruption in business schools, and how they are dealing with it in relation to disturbance in business, and what is the connection there. *Sharon Winocur, BHERT*

When one reflects on disruption, it is prudent to examine the question: What are the fundamental values of accounting so that we can foster better our foundations, irrespective of the disruptions? The value of accounting is not just about the techniques of balancing, it is about the creation and maintenance of value, in ways that are objective, responsible and holistic.

As in the corporate world, thought leadership undertaken in this way has the capability of making our political discourse more open, perhaps challenging and uncomfortable.

PROMOTING ACCOUNTABILITY

Though we refer to differences between the objectives of business and academics, we tend to forget that the ultimate end goal for business is not so different. Accounting in business and in the public interest is about accountability and social responsibility. The means of measurement, the creation and maintenance of value, and the reporting aspect of these, refer to accountability, while the public interest centres on social responsibility.

> ... to shift the conversation from one of accounting to one of accountability. Maybe this is a start. *Nick McGuigan, Monash University*

This second more contentious alternative would enable professional associations to fulfil the principles of social responsibility about which their members often teach and advocate with reference to designated 'harmful' industries. Many associations already engage in such activities. But, the predominant 'professional' tendency is to be more cautious and inward-looking for fear of giving political offence and undermining the legitimacy gained from their apparently neutral, technical expertise.

Professional associations can broaden their social and public role to engage more strongly in debates of public importance. They may commission and promote discussion papers, public briefings and deliberative forums. Sponsoring informed research on problems of significant public interest can raise the public profile of a professional association.

Academics are concerned about issues of exploitation when attempting to develop relationships with industry. However, they are very open to the concept of assisting organisations to address not only managerial issues but also wider issues of inequality or solve problems that are of value to society.

> Some of the big corporates are part of the problem here; they are not part of the solution ... accountants should be saying something about corporates' role but ... it's difficult to do that if you are very close with organisations. Considering

the public interest idea and inequality ... to me, one of the things accountants need to get more involved in is supporting unions and public sector organisations ... it's not all about business, as in it's all about corporate managers, and assisting corporate managers. I think we need to be careful. My background is management accounting, and there tends to be a belief that we are here to support business ... The research is actually 50% about improving things like performance measurement, and so on. We have too many metrics. We have too many ways of making life difficult for operatives and workers in many areas. There are also public sector organisations and charities that are under extreme pressure because they find it hard to demonstrate commercial value. There are union organisations that are not good at defending themselves against financial numbers, as declared by corporates. These are all areas where collaborations could assist with financial literacy. *Alan Lowe, RMIT University*

Improving collaboration between academia and business incorporates not just for-profit organisations but those in the not-for-profit and public sectors as well. These are areas where the public interest is key, while it is also important to remember that the public interest is served by offering the highest quality education and contributing to national prosperity through economic growth, which can be fostered through innovation and entrepreneurialism that creates jobs.

> Universities have for a long time been able to capture some of the knowledge that goes with innovation, which should then feed back into practice over time, and help social progress. *Roger Burritt, Australian National University*

At Monash, we decided that the Australian example relevant to accounting at the moment is the refugee crisis here in Australia. We place refugees as the point of focus to shift the conversation from one of accounting to one of accountability. At Monash University we hold conversations with students on a daily/weekly basis, in very diverse and very different contexts because they have new ways of looking at the world. *Nick McGuigan, Monash University*

INNOVATION

Universities are important to business because they offer the potential for innovation. Nielsen (2017) has discussed how business-model design facilitates innovation and the important role that one university in Denmark has played in this. Innovation happens at the interface between academia and practitioners. Citing a 2016 Australian Government report, Burritt et al. (2017) highlight that Australia has one of the lowest rates of collaboration between universities and industry in the world. Universities have for a long time been able to capture some of the knowledge that goes with innovation, which they should be able to feed back into practice over time. However, this feedback, the knowledge-development loop described by Dawson (2017), is lacking in Australia. Hence, the need for what Dawson (2017) terms 'boundary spanners'.

In the accounting world, professional bodies like Chartered Accountants Australia and New Zealand can be seen as boundary spanners, mediators between academics and practitioners. Laughlin (2011) argues that professional bodies have an important role in bridging the gaps between academics, policy makers and practitioners. Sometimes the mediators are government, but professional associations are really critical. For instance, part of this role is in professional associations' academic research grant programs and also through a range of networking activities in which practitioners and scholars meet, be they academic–practitioner seminar series or other opportunities. Professional associations can be boundary spanners and should act in the public interest (Stokes, 2017).

Similarly, the Accounting and Finance Association of Australia and New Zealand (AFAANZ) represents the interests of accounting and finance academics and others interested in accounting and finance education and research. It operates as a boundary spanner to foster innovation in terms of teaching and research.

ACADEMIC ADOPTION

The concept of a boundary spanning role has been popular throughout academic research since 1958. With the exception of closed systems, all systems have a transference across their boundaries, and this process is facilitated by the boundary spanner. As models of innovation developed, the role of the boundary spanner remained key in seeking out and bringing new ideas into the system or sub-system. It should be noted that the function of the boundary spanner is defined largely by where the boundary is drawn.

One challenge within the field of knowledge management is that the collection and codification of explicit knowledge into tacit knowledge is frequently held in silos within the organisation (Dumay, 2016). Boundary spanners are needed to move that knowledge around the organisation in a process sometimes referred to as 'socialisation'.

Where the boundary of the innovation system of interest coincides with the border of the organisation, the role takes on an extra dimension. Intermediaries play a broad range of functions, facilitating the bringing together of various actors at different parts of innovation processes such as ideation, invention, standards-making, managing intellectual property, commercialisation, creating new market segments, and so on. These intermediaries can specialise in different services. Core functions include process coordination and matchmaking between innovation seekers and potential solution providers, knowledge and finance broking, testing, standardisation, project valuation and portfolio management, and so on. Each of these activities facilitates the exchange and the building of new knowledge, creates opportunities for experimentation, helps the emergence of standards and common goals and the formation of partnerships.

In summary, the term 'boundary spanning' is now widely used to describe any situation where an individual crosses the boundaries of a social group or organisation and/or has a social network in which they operate that is not only discipline or industry focused.

> What role can AFAANZ play in improving collaboration between industry and business researchers? To date, AFAANZ hasn't taken an active part in that space. Its role has been passive in terms of research grants to these topics on Indigenous businesses and water accounting, for example. But we have started to have conversations about how we and our members we bridge the gap between academia and business.
>
> We think one of the ways we can do this is to improve that relationship. We know who our

members are. We also know who our sponsors are, and the businesses out there. One role AFAANZ can play is to be an intermediary between the two. We are discussing having pitch days, where we bring together researchers and businesses that are interested in specific research projects into a room, where the researchers can pitch their projects to interested businesses. It is one way that we can get the two interested parties in the room, to mature that relationship more quickly than if it were to go through the natural progression.

Another way AFAANZ could improve this collaboration is through putting some money aside via the research grants program for specific projects of this nature. Traditional researchers view these types of high-impact engagement projects as high-risk projects, because usually they are unsure as to the output: whether it will end up as a traditional journal article, and citations, and books. One way AFAANZ can aid this collaboration, or encourage this type of work is to set aside some funds for projects of this nature. *Millicent Cheng, AFAANZ*

IMPACT

Impact means different things for different participants in collaboration. For academics, to date performance management systems (PMS) have focused on measuring performance through publications, citations and research funds awarded (Cooper and Guthrie, 2017). These actions may be counter to the aims of an industry partner who wants help solve a 'real-world problem' or who wants to develop innovative commercial products.

The measurement frameworks for academics relied on by governments to date can be a blunt instrument in that they do not allow for the wider range of collaborative experiences. Too often, they are based on journal rankings. However, recently the UK system has shifted to requiring a case study that explains what a researcher's impact is for an organisation, or in an industry, and includes supporting evidence from the companies in the sector. For a lot of accounting academics, this has been extraordinarily difficult.

Not many large companies, not many significant projects are going to come your way as an accounting academic in my experience, so that's pretty tough. *Alan Lowe, RMIT*

In Australia, there is also a shift from ranking publications towards a government policy that examines impact and engagement. The Australian Government is undertaking a pilot project to develop guidelines and national metrics for understanding engagement and impact. However, business disciplines are not involved despite about 60% of students in universities studying in business faculties and 50% of academics working in business disciplines (Burritt et al., 2017).

The Australian Business Deans Council put in a submission to the government body looking at this whole area of impact and engagement. The messaging from the Australian Business Deans Council is that not all disciplines should be treated the same; that engagement is different for different disciplines; that innovation is different. *James Guthrie, Chartered Accountants Australia and New Zealand*

The development of various aspects of accounting literature covers not only the technical aspects of accounting but also the humanistic areas, such as social and environmental accounting. Therefore it can be argued that impact should be assessed without the confines of accounting. This goes to the heart of what impact means. The impact cannot be measured if it cannot be defined. Yet in collaboration, it means different things to different parties:

We define and measure impact differently. When a minister refers to impact as a measure of the result of your research, does s/he mean did a company, or a corporation, or a sector change their practice? Or did you challenge conventional wisdom in practice? Did your research have implications for policy, for regulation? ... The citation is a part of the impact. If 2,000 people read your paper, and that contributes to their research program, you have made an impact. If you have an idea, if you develop a theory, and 20 people are working on your theory, that is also an impact. *Reza Monem, Griffith Business School*

When we look at these enormous problems facing the world, I don't think management and accounting together are going to solve them. For me, when you look at impact, it's got to be in the context of the totality of all the relevant disciplines, plus the fact that we need to get our stakeholders involved. Practitioners are a really key part of the stakeholders. Unless we can measure impact along stakeholder engagement, or whether it's to do with the interdisciplinary aspects of our work, I feel we are going to be wasting our time with these measures. *Roger Burritt, Australian National University*

An example of impact follows:

My story is about teaching-led research and what impact means in the broad sense of collaboration, for both the researcher and the industry partner. I was interested in exploring the introduction of International Financial Reporting Standards (IFRS) into Australia. With the introduction of IFRS, some of the accounting academics were far ahead of practice, in that we were exposed to the potentialities required through curriculum development. We knew that IFRS adoption would be for for-profit and not-for-profit entities as well as public sector entities.

I knew the CEO of a reasonably sized not-for-profit health and aged care facility within NSW, and I was talking to him about the introduction of IFRS and what it would mean for the not-for-profit sector and for his company in particular. On my recommendation, he took up this conversation with the CFO of his organisation, who had no idea of what it would mean for the organisation. This started a collaboration with the not-for-profit health and aged-care organisation. I had to get ethics approval for interviews, so that took a while through Macquarie University – about two or three months by the time the form was submitted, then the committee doesn't meet for another three weeks, and then two sentences should not have been there. As a result, the application had to be amended and go back to the committee. I had to wait until the committee met again ... It had to go through ethics so that I would be embedded in the organisation for a little while, talking to

their CFO and other people who were involved in the introduction of IFRS and the reporting requirements. Also, I needed the permission of the board of the organisation, and there were confidentiality clauses that needed to be signed off.

The auditors were a mid-tier firm, and they really didn't know that much about IFRS at the time either, and they weren't able to help set up the systems that were in place. And so, with the conversations that I had with the CFO, CEO and board members over a period of time, they hired a consultant to introduce IFRS into the organisation, to bring about the changes that they needed in the information systems so that they would be IFRS-prepared.

It came about as a conversation. It came about as a great opportunity, as a researcher, to be embedded in an organisation to facilitate necessary changes in the accounting system. I believe that I made an impact. For me, I developed the research into a potential conference and journal article, although in the end it was rejected as the reviewers indicated that the issue was too localised. The research, however, lead to a change in the organisation's accounting system – it resulted in a not-for-profit organisation being better prepared to take up the responsibilities of reporting under new accounting standards. And the experience provided me with an abundance of real-life examples in my teaching. *Elaine Evans, Macquarie University*

IN SUMMARY

In reflecting on how to improve collaboration, this paper has examined four broad themes: disruption; the public interest; innovation; and impact. It has benefited not only from the contributions of the panel members at the Thought Leadership Forum in February 2017 but also from those who were in the audience and enthusiastically participated in the discussion.

Universities and business schools, alongside businesses in general, have and will continue to face disruptions as a consequence of changes in technology, business models and public expectations. To assess the implications of disruptions, we adopt

FIGURE 1 DISRUPTION AND COLLABORATION CAN LEAD TO INNOVATION
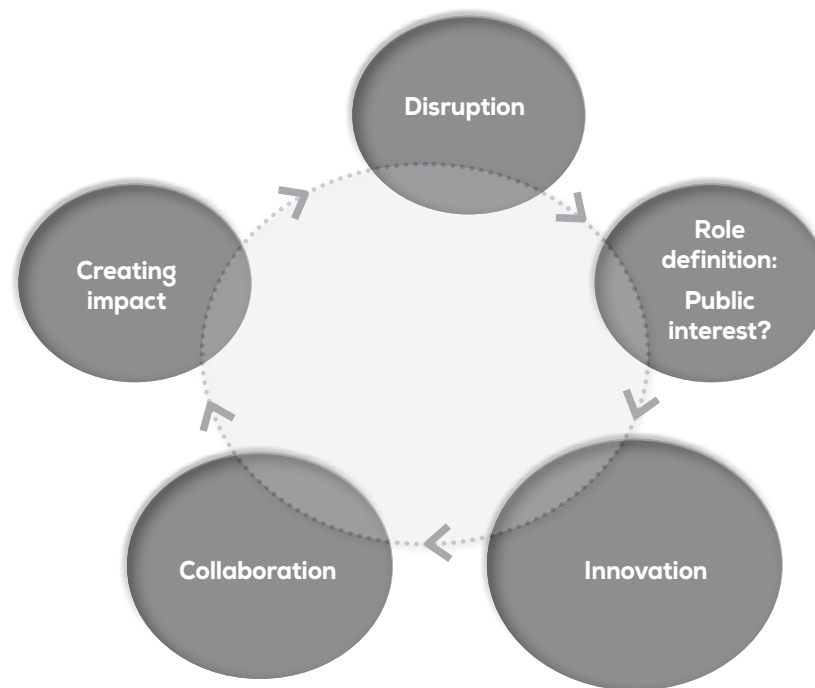
a 'back to basics' approach by reflecting on the foundations of accounting, where the cornerstone of serving the public interest is espoused. This role-reflection helps us to identify the means to change, for example, to adopt a transdisciplinarity approach, to operate outside the traditional routes, leading to new thinking and striving for innovation. Neither academe nor business nor industry can undertake innovation on their own; they need to collaborate with one another. Collaboration creates a visible impact that brings value to society. This disruptive cycle is depicted in Figure 1.

In conclusion, this paper has explored several ideas of innovation, including changing the language of accounting and focusing on a broader sense of accountability and social good. Innovative practice, such as incubation and contributing to start-ups, lends itself to collaborative activities.

There is no question of the engagement of Australian and New Zealand academics who were present at the Forum. They are keen to make a difference in the world and to work with industry to solve the so-called 'wicked problems' (Jacobs and Cuganesan, 2014). There is also a commitment by those working in the accounting profession and academia – Chartered Accountants Australia and New Zealand and AFAANZ – who are eager to promote contemporary projects and different ways of collaboration. It is more about changing the mindsets of some and harnessing their willingness where ideas raised in this panel discussion are realised into activities, making a meaningful contribution to society.

The following ideas, as discussed at the Forum, are recommendations for action:

a. develop a digital platform where businesses and academics and students all contribute to identifying areas of interest, business problems and solutions to promoting collaboration;

b. commit to a systemic approach to holding regular dialogues and conversations with students on a diverse range of issues and contexts, establishing new perspectives;

c. create opportunities to unlearn the past and to re-learn from a transdisciplinary approach with alumni, businesses and academe.

Universities have traditionally been the stewards of knowledge, but they now do not have a monopoly over knowledge. Those in industry and society can find information from many sources. But, academics have the potential to turn knowledge into value: value in its broadest form, creating wider societal good. Universities and industry must work together to create such a social impact.

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Initiatives for University–Industry Transitions: A University Perspective and Illustrations

ANN BREWER

INTRODUCTION

University–industry partnerships are strategically important for many different reasons, including expanding the capacity to commercialise research. However, what sounds simple in theory scarcely does justice to the complexity of developing partnerships in practice, despite the synergies and benefits for each party. Besides, there is insufficient evidence to attest to how best to maximise outcomes and practice for partnerships. The fact that this is a topic for this year's *Academic Leadership Series* suggests that there is still some work to be done.

FIGURE 1: SUCCESS AND RETURN RATE FOR THE LINKAGE PROJECTS SCHEME, 2003–2016[1]

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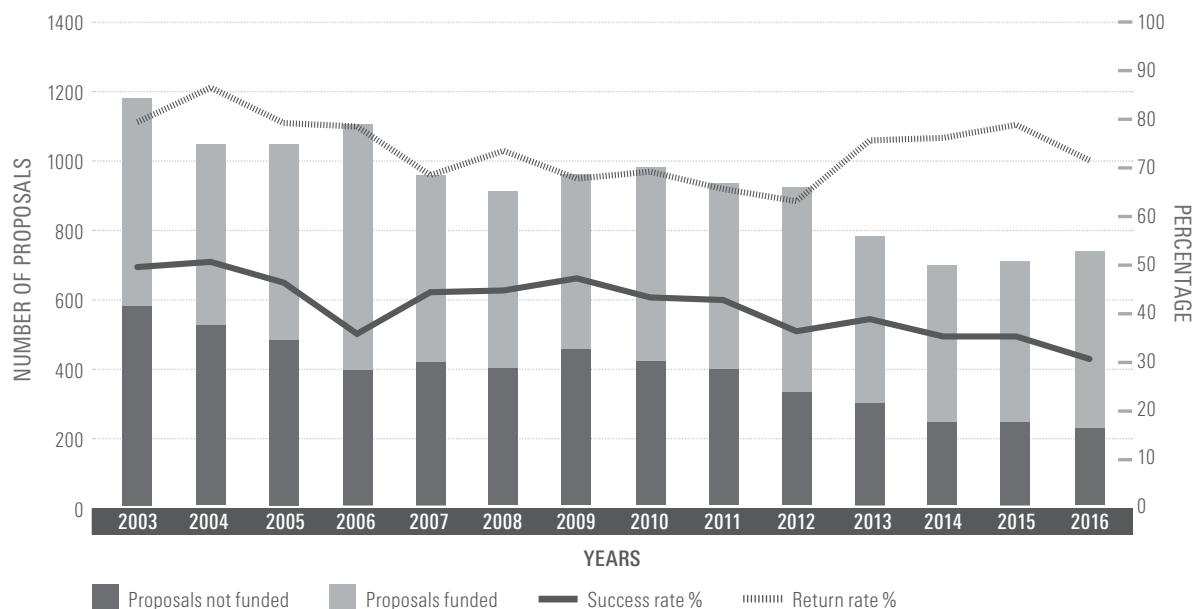
1. http://www.arc.gov.au/presentation-20161012-Laura-Dan?utm_medium=email&utm_source=sendpress&utm_campaign

Competition for funding for non-industry research in Australia is declining year by year. Realistically, this funding is available only to a small percentage of researchers with well-established research trajectories. Figure 1 shows the Australian Research Council's latest statistics for the Industry Linkage Scheme, indicating a decline from about 45% in 2003 to over 30% in 2016, except for an increase between 2006 and 2009.

Against this backdrop, the Australian Federal Government has outlined its changes to the way research will be funded: '… Government's $1.875 million commitment for three mining research programs at The University of Queensland and research into strengthening railway tracks at the University of Wollongong were the first projects to be funded under the new Linkage Projects scheme – *a major change in the way research is funded in Australia*[2] and a key initiative of the National Innovation and Science Agenda. Minister Birmingham said the Linkage Projects scheme was a direct response to the country's "appalling" reputation internationally for collaboration between industry and higher education researchers where the OECD ranks Australia last out of all 33 participating countries for collaboration by large firms'.[3]

The purpose of this paper is threefold. First, it defines partnerships; second, it proposes a partnership equation model that includes the strategic and participative pillars; and third, it shows how this model assists in both initiating and managing partnerships as well as evaluating outcomes.

DEFINING UNIVERSITY–INDUSTRY PARTNERSHIPS AND CONTEXT

University–industry partnerships are cross-sector partnerships (CSPs) as they are formed between different types of organisations, dissimilar industry sectors as well as from the non-profit and for-profit spheres (Dentoni et al., 2016). CSPs, while pervasive in many sectors, remain unevenly distributed within the university sector. The paucity of partnerships may be partly due to (a) the intrinsic complexity of inter-sectoral collaborations with universities and (b)

a hitherto laissez-faire approach towards industry linkages, often relying on individual-to-individual networking. However, increasing competition for industry-based research funding and investment has increasingly required universities to establish formal channels, policies and incentives for industry contact so that staff and students can engage in partnerships. CSPs allow for better access to resources, mostly unavailable to each partner outside the relationship. Resources include tangible and intangible assets, such as research skills, technical know-how, human capital, specialised equipment, funding and so on.

University–industry partnerships are not as straightforward as using a dating app although there are similarities in terms of exploring the intentions of each party, their expected outcomes, the nature of the partnership they desire as well as the risks and obligations in getting together. CSPs include members in each team with 'fundamentally different core logics, operating principles, and goals. This diversity makes collaboration more vulnerable to tensions and conflict unless trust is created' (Dentoni et al., 2016, p. 37). The difference in core logics not only occurs between the partners, for example, the differing expectations of each partner, but also within the partner teams, for example, the differing sentiments about industry partnerships. However, industry and universities are not as diametrically different as is often observed when forging partnerships with each other. More frequently than not, they have similar concerns about benefits, outcomes and limitations. The challenge is that CSPs are often misconstrued intra- and inter-organisationally.

This paper will examine the attributes of strategic and participative governance[4] that facilitate and impede effective university–industry partnerships. Strategic attributes, such as priorities, structures and policies are only one side of the equation for achieving effective partnerships. The strategic part of the equation essentially relies on participative governance to enable it. Participative governance involves the critical interaction that needs to occur amongst partnership members, the sharing of values between them,

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2. Emphasis added.
3. https://ministers.education.gov.au/birmingham/fast-tracking-nsw-and-queensland-project-funding-industry-research-collaboration, the Federal Minister of Education's media release on 30 January 2017.
4. Drawing from the large body of public governance literature.

open and transparent communications, as well as a commitment to resolving conflicts as they arise. An important factor is how participative governance aids the co-creating of tacit knowledge ('knowing more than we can say' (Polyani, 1967)) to forge and strengthen partnerships and partnership learning.

CSPs are essentially a heterarchy (Cumming, 2016) of strategic and participative elements, simultaneously interconnecting and interdependent, vertically and horizontally, as shown in Figure 2. Very few attributes remain superior throughout the process of the partnership. While leadership is important, partnerships are more successful when this is distributed amongst members. Some attributes complement and contribute positively to the partnership and, at other times, create tension (Smith and Lewis, 2011). The tensions manifest in and through the partnership from the outset through to completion and include, for example, cooperation and competition, control and flexibility, continuity and change, among others (Smith and Lewis, 2011). These tensions are 'normal' conflicts that exist in any relationship, partnership or organisation. These challenges need to be managed within partnerships and require flexibility
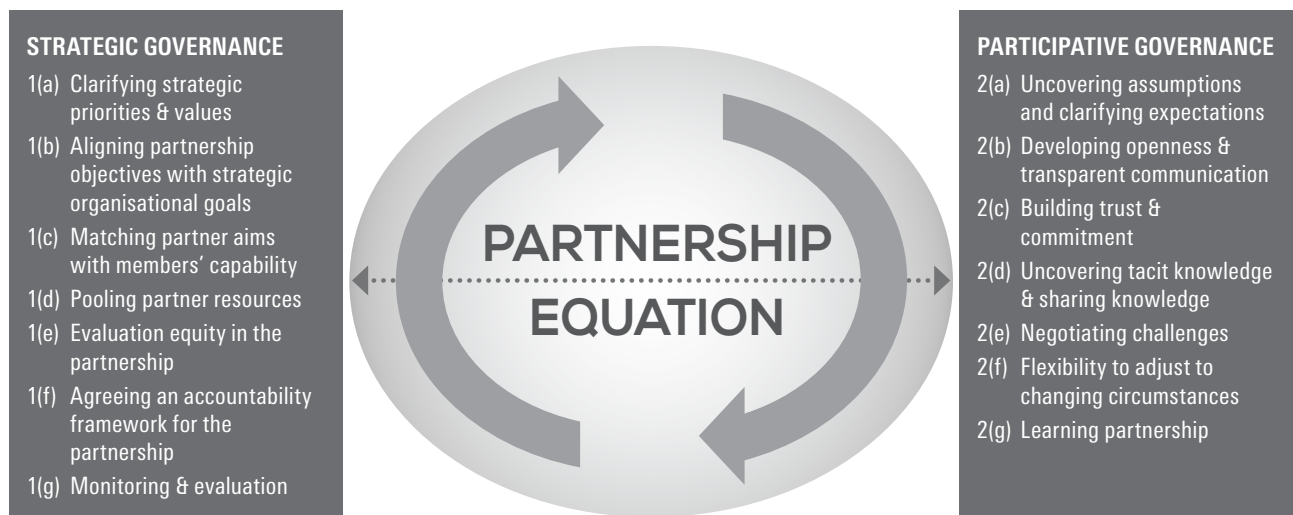
and membership resilience. The challenge for the overarching university and industry organisations supporting the partnerships is to ensure flexibility by establishing suitable hosting conditions.

STRATEGIC GOVERNANCE

Generally, universities are streamlining processes and establishing structures that facilitate potential partnering. This trend is timely given that, increasingly, governments, businesses and universities are encountering unparalleled opportunities to achieve significant outcomes from their strategic developments and investments, through multiple and diverse stakeholder partnerships. In some cases, university–industry partnerships not only address research demands for the university but also philanthropic ones in terms of funding and other critical contributions.

Clarifying the strategic imperatives of each of the respective partners is essential for successful matching. Sometimes industry seeks a partnership with a university to solve a specific problem (Kolk et al., 2008; Kolk, 2014) or they wish to accelerate an idea that is not fully formed but is based on a potential

FIGURE 2 UNIVERSITY–INDUSTRY PARTNERSHIP EQUATION

STRATEGIC GOVERNANCE
1(a) Clarifying strategic priorities & values
1(b) Aligning partnership objectives with strategic organisational goals
1(c) Matching partner aims with members' capability
1(d) Pooling partner resources
1(e) Evaluation equity in the partnership
1(f) Agreeing an accountability framework for the partnership
1(g) Monitoring & evaluation

PARTNERSHIP EQUATION

PARTICIPATIVE GOVERNANCE
2(a) Uncovering assumptions and clarifying expectations
2(b) Developing openness & transparent communication
2(c) Building trust & commitment
2(d) Uncovering tacit knowledge & sharing knowledge
2(e) Negotiating challenges
2(f) Flexibility to adjust to changing circumstances
2(g) Learning partnership

demand or perceived gap in the market. Incubating and accelerating an idea is more flexible for university researchers to deal with and, therefore, more likely to lead to a successful match than requests for solving fixed problems. In the latter case, the issue presented may be highly customisable to specific situations, require unwarranted investment given that the 'solution' may have narrow applicability, or require considerable rethinking and redesign to obviate these concerns. What is strategically important for industry may not necessarily fit in with university priorities. Fallouts can occur at any stage in the partnership due to a misconception, an over- or under-estimation of potential value, unrealised expectations, restrictive practices, poor incentives or lack of investment. All these are discussed under the following seven headings.

1(a) Clarifying strategic priorities and values

The first principle for university–industry partnerships to thrive, according to The University of Newcastle's (UON) Vice Chancellor, Professor Caroline McMillen,[5] is an effective alignment of university strategy and priorities alongside creating new avenues to capture, scale up and guide industry engagement opportunities through to eventual collaboration. Visible and feasible processes to support strategy and research alignment enable the assessment of potential engagement opportunities to find a match with the university's overarching vision and mission. This necessitates the prioritisation of strategic alignment over stakeholder alignment. This prioritisation both supports and creates tension, as often partnerships are forged around stakeholder alignment initially.

Structural conditions are also important for spawning opportunities, both in terms of providing access to potential engagements and negotiating them by:

1. developing clusters of high-value initiatives;
2. establishing a suitable balance of initiatives; and
3. ensuring that initiatives are aligned with university strategic directions.

Examples of UON's clusters[6] include:[7]

a) Energy, Resources, Food and Water (2016)
b) Better Health, Healthcare and Treatment (2016)
c) Future Industries (2017)
d) Strong Cities, Communities and Regions (2017)

It is important to note that university–industry engagement offers new opportunities for early career researchers in terms of joining a research team, funding and experience in a non-university context, which opens up new horizons.

1(b) Aligning partnership objectives to university's strategic organisational goals and identifying impediments

An important first step is to identify the goals for the partnership, frame them as unambiguously as possible, formulate and agree on initiatives and specify action plans. For example, *FAUNABank* is a network of university researchers that includes The University of Newcastle, zoos, museums and other stakeholders involved in biobanking, principally cryobanking cells and tissues of native species as a means of conserving genetic diversity and management of extinction risk. Both *FAUNABank* (an initiative of FAUNA Research Alliance) and Taronga Zoo are committed to the development of assisted reproductive technologies and genome storage/biobanking approaches as conservation tools for native species.[8]

Appropriate priority needs to be assigned to initiatives that provide maximum return on investment (ROI) as measured against agreed objectives. Once agreed, each partner needs to ensure that the engagement process is working to support their mission, key objectives and values and, in particular, their communities and stakeholders. For example, The University of Newcastle is a regional university and so industry engagement needs to add value to its proximal communities, whether it be incubating or contracting research, work-integrated learning, accelerating a business idea or resolving problems.

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5. In conversation with the author.
6. http://www.newcastle.edu.au/research-and-innovation/innovation/clusters
7. http://www.newcastle.edu.au/research-and-innovation/centre/nier/news
8. John Clulow, BA BSc (Hons), GDipAppFin, PhD, Senior Lecturer, Conservation Biology Group, School of Environmental and Life Sciences, University of Newcastle.

CSP members need to have access to a support team to work through this goal-setting process, identifying and addressing specific impediments as they arise. Impediments include:

a) perceived risks;

b) insufficient research/project time;

c) lack of financial support and policy/regulation barriers;

d) unsatisfactory university commercialisation substructure;

e) low professed significance for the university, the research field and faculty;

f) a disconnect between research and what faculty believe is innovative, commercialisable research;

g) unclear and uncommon goals and benefits between faculty and university administration;

h) lack of entrepreneurial thinking among faculty;

i) faculty not understanding how to commercialise their research; and

j) lack of interaction and collaboration between universities and industry (Breznitz and Ram, 2013).

Moreover, addressing each of the impediments in Table 1 assists in building the partnership, especially in regard to one very important intangible asset: trust.

1(c) Matching partner aims with members' capabilities

The depth and diversity of member capability is often misunderstood by the respective partners. Complementing and augmenting capacity is required in most cases and often unexpected. The higher the complementarity of capabilities between partners, the higher the likelihood of mutual trust and the higher the level of mutual commitment (Das and Teng, 2000).

1(d) Pooling partner resources

Research shows that the stronger the strategic link between partners, the higher the level of mutual trust between them and, consequently, the higher the level of commitment to the partnership (Turk and Ybarra, 2011). The University of Newcastle works within its strategic framework for evaluating the strategic impact of proposed, emerging and continuing industry initiatives so that informed decisions are made and executed regarding how resources are to be allocated to maximise return, minimise risk and ensure progress against stated objectives.

TABLE 1 PERCEIVED IMPEDIMENTS FOR EFFECTIVE UNIVERSITY–INDUSTRY LINKAGES

STRATEGIC	CULTURAL
• Goals • Priorities • Risks • Perceived benefits and outcomes	• Values • Interests: team and individual • Interactions • Perceived capability of each partner

LOGISTICAL	GOVERNANCE
• Funding • Timescales • Commercialisation infrastructure • Tracking inputs • Measuring outcomes • Accessing entry to the university	• Policies, e.g., IP • Regulations

1(e) Evaluating equity in the partnership

University–industry partnerships depend upon collaborative research and development as well as collaboration among competing entities. Shared know-how and capabilities significantly contribute to productive collaboration. Successful partnerships need a strong degree of equivalence for each member, both organisationally and individually. Relationships cannot be sustained without a high degree of equity, for example, IP, ROI. When partners feel that they share benefits and risks fairly, trust is enhanced, which is especially important when competitors partner with each other.

1(f) Agreeing on an accountability framework for the partnership

Accountability incorporates strategic, operational, and inter-member responsibility and liability. A failure in one aspect of accountability potentially leads to a domino effect and, eventually, the unravelling of the partnership. Inter-partner attributes include a strategic agreement, a resource match, agreed values, trust and commitment. This is no easy feat, as it requires a willingness to commit resources towards collective endeavours and being vulnerable to the actions of others, who share access to these resources (Chow and Chan, 2008). An accountability framework is important for monitoring the implementation of the joint endeavour. Support from key stakeholders, including the Vice Chancellor and relevant senior executives responsible for partnerships, is an important strategy in enhancing acceptance, legitimacy and ownership of the project, and ensuring implementation.

1(g) Monitoring and evaluation framework

Monitoring and evaluating partnerships are serious challenges and include three aspects: (1) evaluating the lifecycle of the partnership; (2) the value derived from the joint endeavour; and (3) the impact of the partnership when complete (based on Van Tulder and Maas, 2014). Partnership members experience pressures not only to produce outcomes but also to augment the value of the partnership. This pressure emanates from each host organisation. An unsuccessful outcome potentially affects the credibility and reputation of the university or industry organisation, especially when the stakes and risks are high. Ultimately, an unsuccessful university–industry partnership places a pall over future CSPs and affects their attractiveness for others.

Other pressures include taking credit for results that the partners cannot possibly achieve (Ebrahim and Rangan, 2013) as well as inadequately measuring value and performance alongside scope creep (Epstein and Klerman, 2013). Historically, industry research linkages were viewed less favourably due to a perception that they hindered academic advancement and therefore were seen as obstacles to successful career advancement by university researchers. Other researchers did not see the value of partnerships, as they perceived the industry partner members to be 'non-expert'. Factors such as the changing context of declining research funding in Australia and academic promotion criteria more likely to include industry engagement are assisting researchers to engage in university–industry partnerships.

PARTICIPATIVE GOVERNANCE

In partnerships, participative governance is closely associated with strategic governance, emphasising the importance of member engagement vertically and horizontally. Participative governance is a set of practices that include partnership expectations, transparent communication, engendering trust, sharing knowledge and negotiating challenges.

2(a) Uncovering assumptions and clarifying expectations

Uncovering assumptions and clarifying expectations are best achieved through a round table discussion based on three questions:

1. What drives this partnership? Addressing this question will reveal assumed benefits and outcomes.

2. What are the perceived risks of this partnership? Addressing this question will reveal issues around values, IP and authorship, capacity, transaction costs and incentives, as well as different perceptions about each other's organisation.

3. How will members contribute to this partnership? Addressing this question will reveal access to resources, for example, funding, networks, databases, logistical support, capability, and expertise in conducting the joint endeavour, such as ethical clearance and publications.

2(b) Developing openness and transparent communication

Transparency and openness enable both partners to share important information in a timely manner, minimise confusion and errors, and expedite resolution of conflicts within and between the partners. Providing avenues for open communication and airing of disputes is paramount. If these are not resolved, they need to be referred to a formal dispute resolution mechanism, agreed on from the outset. In addition to the CSP leader, assigning a member, one from each party to the partnership, to act as a facilitator, will assist this process.

2(c) Building trust and commitment

Trust and commitment develop from the way in which members interact within the partnership. Trust functions not only to inform perceptions of its members, facilitating a give-and-take condition (Chow and Chan, 2008), but when trust is raised it also acts as a 'valve' to release tension, aiding flexibility, as discussed below. In such cases, trust emerges not only as a social bond facilitating collaboration but also as a macro-cultural artefact conducive to enhancing the partnership in every respect.

2(d) Uncovering tacit knowledge and sharing knowledge

Tacit knowledge is usually derived from previous successful experiences. Tacit knowledge held by individual members is only valuable to the partnership when it is shared or converted to something relevant for goal attainment, while at the same time strengthening participative governance (based on Grandinetti, 2014). When tacit knowledge is realised, it facilitates action and can bolster trust and confidence amongst partnership members. Partnership learning occurs through actions ranging from sharing information, group discussion, problem-solving, and critical reflection and negotiation.

2(e) Negotiating challenges

University–industry partnerships essentially are hybrids of each other's host organisations. A hybrid enables the members to develop and negotiate the narrative of their collective interests in the specific partnership to mobilise resources from those stakeholders who are primarily interested in ensuring that the partnership outcomes are aligned to their strategic priorities.

As partnerships develop, common interests and challenges emerge, which, if worked through effectively as in any relationship, strengthen them. The collective interests of the parties form a newly created 'core logic' which, in turn, strengthens the partnership's capacity to demand and marshal resources from both host organisations to which each reports. Despite this, demands on the partnership remain, namely having to navigate continuously around each other's host organisations' cultures and artefacts, for example, use of acronyms, changing priorities and personnel priorities. More often than not, restructuring occurring within their host organisations presents unexpected challenges and pressures for partnerships, as does the scope of the project, which inevitably broadens or narrows over time. While, in theory, members share the project identity, each does not share the other's 'corporate' identity of the host organisation, underlying the power of their different 'masters'.

However, a challenge arises when a strong cooperative identity derived from the hybrid partnership supersedes the corporate identity of each host. In such cases, university partnerships may be lured to seemingly more fertile ground. A partnership agreement outlining clear boundaries needs to take into account these possibilities as well as the potential risks to the ongoing partnership.

2(f) Flexibility to adjust to changing circumstances

Flexibility (see Bakker et al., 2013) is the capability of the partnership to modify its objectives and plans so as to keep the project on track throughout its lifetime – short term, months or long term, years. It represents both the partners' willingness to adjust to changing conditions brought about by factors often beyond their control, for example, budgetary constraints. CSPs mobilise expert partners from universities and industry and form together in the short term, often dispersing once the project is completed. There are three phases of flexibility to consider: before, during and the aftermath. In the first phase, members are preparing to form the partnership and work together,

whereas in the aftermath phase, members are disbanding and either planning a further joint project, or considering whether they will work together again. Both phases require flexibility. Unexpected changes and consequences inevitably occur due to internal and external demands. As circumstances change, flexibility is required to ensure the stability of the partnership in all three phases. What makes university–industry partnerships potentially attractive is the flexibility that working in diverse teams brings, especially if resources are limited. Trust and communication facilitate the flexibility of CSPs.

## 2(g) CSPs as learning partnerships

Co-opting teams from universities and industry is advantageous for securing novel outcomes and performance (Ritala, 2012). University–industry collaborations ultimately transform into learning partnerships, as members research new ideas leading to examining and developing new opportunities (based on Troy et al., 2008). Co-opetition creates a constructive tension as partnership members accommodate each other so as to generate and apply new knowledge. Partnerships are relationships rich with potential for achieving a joint endeavour, building capacity and self-efficacy for their members, individually and collectively, a form of learning to work in teams. The challenge lies not only in finding ways around impediments but also in achieving the best balance to ensure that a comfortable equilibrium is sustainable (Martin and Osberg, 2015).

APPLYING THE PARTNERSHIP EQUATION MODEL

Each of The University of Newcastle's university–industry engagements illustrates the application of the partnership equation. Figure 3 depicts the interplay between the members of the partnership in producing strategic partnership capital, derived from the social capital created as well as managing the inherent tensions.

FIGURE 3 PROCESSES WITH STAKEHOLDERS WITHIN A UNIVERSITY–INDUSTRY PARTNERSHIP
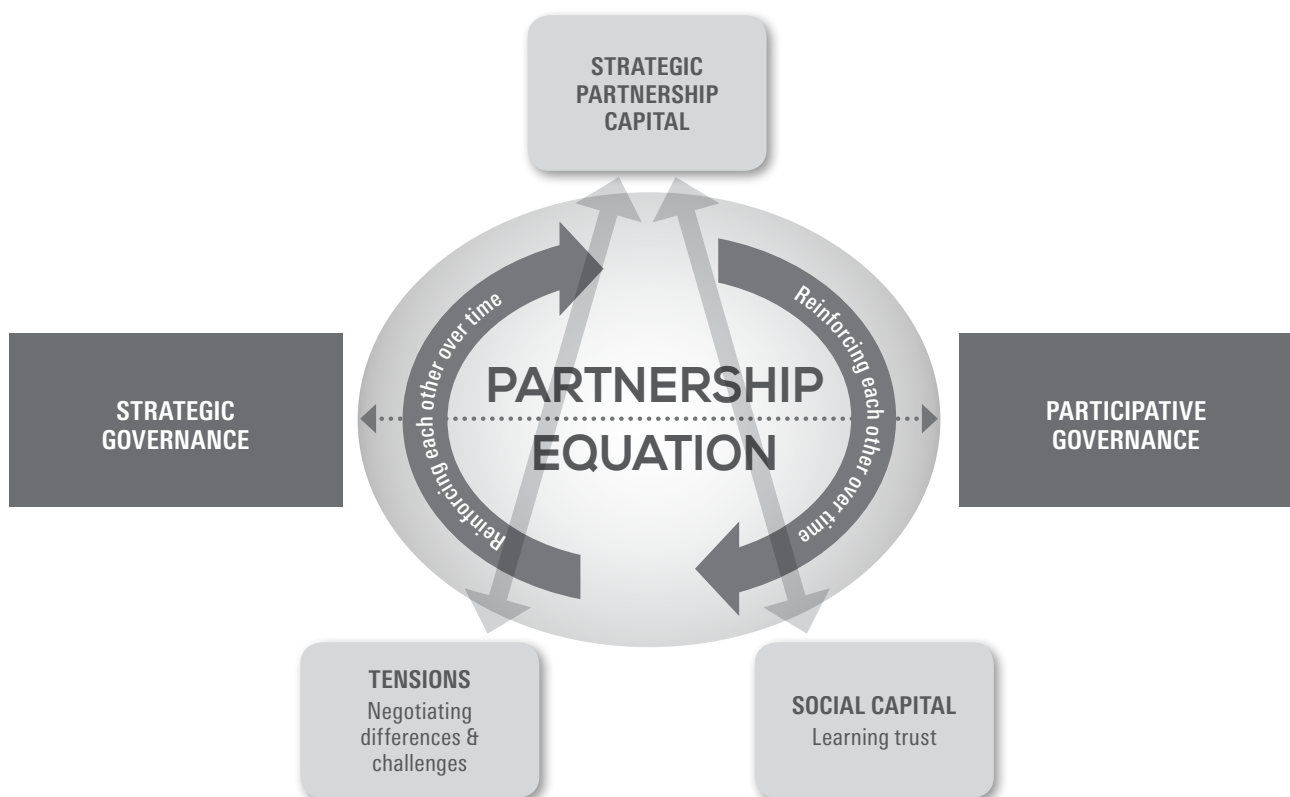
Strategic partnership capital leads to a strong alignment with each host organisation's strategic priorities, is impactful research-wise, achieves the agreed outcomes, and creates a suitable balance between the core logics. The following examples clearly demonstrate this.

The Jameson Cell,[9] a radical new flotation device, was developed at The University of Newcastle in conjunction with mining industry partners. The froth flotation process is relied upon by mining operations globally to separate valuable minerals from the host rock. Improvements in this process directly lead to more efficient and cost-effective productions, as well as increased profit. The Jameson cell is now implemented in over 25 countries worldwide, including Australia, the United States, South Africa, China and Mexico. From 1990–2011, the cumulative total value of export coal recovered by the Jameson Cell in New South Wales and Queensland was A\$22.1 billion. In 2011 alone it was A\$4.3 billion.

The University of Newcastle's Centre for Optimal Planning and Operations (C-OPT)[10] developed an optimisation-based approach for Aurizon to effectively analyse the impact on the system-wide throughput capacity of a preventive maintenance schedule (or a possession regime). C-OPT's analysis tool allows Aurizon to develop preventive maintenance schedules that maximise system throughput while ensuring that maintenance requirements are met. Aurizon operates and manages approximately 2,670km of heavy haul rail infrastructure across Queensland.

A final example to draw on is an Integrated Innovation Network[11] established with A\$1 million state funding to create enabling environments where researchers, start-ups and SMEs can undertake multi-disciplinary collaboration and produce the next generation of entrepreneurs. The University of Newcastle will anchor its entrepreneurial activities at key regional locations through five sub-projects:

1. An innovation hub developed at 376 Hunter Street to provide a dynamic, co-working space designed to support activity across the various phases of incubation, acceleration and potential commercialisation. Programming will be developed in consultation with stakeholders including students, local businesses and industry partners.

2. UON will occupy a fit-for-purpose space at the Williamtown Aerospace Centre from mid-2017.[12] Aimed at innovating research technology applications in the commercial aerospace and defence markets, the hub builds on UON's acknowledged strengths in cyberspace, control systems, autonomous vehicles, simulation modelling, and propulsion and energy storage, all of which offer opportunities for engagement with industries positioned in defence, both locally and nationally.

3. An Upper Hunter Hub[13] will be established as a co-location of office, teaching and lab spaces aimed at supporting the diversification goals of the Upper Hunter and its potential to transition into an innovation intensive region. The Hub will help to foster an innovation ecosystem that adds capacity for existing industries and becomes an enabler for new industries.

4. In collaboration with Dantia,[14] UON will develop innovation and entrepreneurial programming at the Lake Macquarie DASH co-working space and provide opportunities for SMEs to scale up their existing products and services and help to drive start-up activity in the local government area.

5. An Innovation vouchers program will leverage UON's existing tech transfer expertise and longstanding relationships with the local start-up and seed investor community to create partner-led projects to complement the above innovation spaces.

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9. http://www.newcastle.edu.au/research-and-innovation/innovation/engagement-with-partners/the-jameson-cell-for-flotation-of-minerals-and-coal
10. http://www.newcastle.edu.au/research-and-innovation/centre/copt/about-us
11. http://www.newcastle.edu.au/newsroom/featured-news/million-dollar-investment-for-regional-incubator-space
12. http://newcastleinnovation.com.au/million-dollar-investment-regional-incubator-spaces
13. http://www.newcastle.edu.au/newsroom/featured-news/hunter-innovation-precinct
14. http://www.newcastle.edu.au/industry/enterprise-innovation/speed-mentoring/callaghan

TABLE 2 APPLYING THE MODEL TO THE UNIVERSITY OF NEWCASTLE EXAMPLES

STRATEGIC GOVERNANCE	PARTICIPATIVE GOVERNANCE
• Strong strategic alignment to drive regional development	• Flexible organisational structures to adapt to changing circumstances
• Align strategic objectives and outcomes	• Extended learning experience for all, especially students
• CSP – interdisciplinary and collaborative	• One-stop shop and access
• Focused on impactful research	• Unique forum for information sharing, knowledge generation
• Share and leverage each partner's resources	• Open and transparent communication channels
• Research solutions translated regionally, nationally and globally	• Negotiating challenges & dispute resolution framework
• Build capability and capacity	
• Provides an accountability framework	
• Evaluation of goals against outcomes	

CONCLUSION

When university researchers collaborate with industry partners, a new learning for the members and the partnership itself is created (based on Real et al., 2014). A CSP is a 'dynamic process of creating, acquiring, and integrating knowledge in an attempt to develop resources and capabilities that will enable the organisation to achieve better performance' (Sanzo et al., 2012, p. 702). It is the basis for attaining a sustainable competitive advantage for both the university and industry separately and together and requires adherence to appropriate strategic and participative governance.

Consequently, university–industry partnerships play an essential and increasingly energising role in the global economy. They benefit partnership stakeholders and many more outside the relationship. Unfortunately, little research has been conducted in the partnering process, the facilitators and impediments that lead to CSPs. All the examples in this paper elucidate the partnership equation, contributing and drawing from the key elements of strategic and participative governance as outlined in Table 2.

Considering strategic and participative governance together points to the utility of using such a model to both explore and evaluate partnerships and to disentangle some of the complexity underlying a CSP. It may be time to rethink exactly what CSPs mean in a university–industry context, given the paucity of them, and consider the policies and conditions that shape or block them, as well as the breadth of their goals, expectations, and assessing and publishing effective outcomes.

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PART C

SPECIFIC CHALLENGES AND OPPORTUNITIES

Post the Watt Review – Australian Business Schools and Collaboration with Industry

BARRY J COOPER AND JAMES GUTHRIE

INTRODUCTION

How times have changed! In the past, Australian academia was once an arguably unstressed existence, when students all had relatively high entry scores, were not too demanding, attended classes and were mostly known by their name by lecturers. Now Australian universities are big corporations, employing over 130,000 staff and with a $20 billion international education industry.[1]

Over two decades of a focus on research 'quality' in Australia (Martin-Sardesai et al., 2017) and the contemporary Excellence in Research for Australia (ERA) process for the Australian Higher Education Sector has moved universities and many academics to focus on so-called 'quality research' (Martin-Sardesai et al., 2016). This has come with significant unintended consequences, such as academic burnout, obsession with rankings and ratings, casualisation and a dwindling emphasis on teaching quality and practice as well as industry engagement (Martin-Sardesai et al., 2017; McCarthy et al., 2016). Broadbent (2016) and Agyemang and Broadbent (2015) highlight similar issues in the United Kingdom with the Research Excellence Framework (REF) and its impact on academics and universities.

However, recent statements by the current Minister of Education[2] and various Australian Government papers (e.g., Watt, 2015; Commonwealth of Australia, 2015) have highlighted a shift towards relevance and the impact of university research and teaching. Such contemporary developments have raised several

challenges, and the aim of this paper is to consider the question: How should Australian business schools react to contemporary changes towards research and engagement in the Australian higher education system?

This article briefly reviews several contemporary statements concerning the Australian research sector and provides a brief review of the Government's National Innovation and Science Agenda. It reflects on the Australian experience with ERA and the UK experience with the REF. Both were national government initiatives attempting to identify, quantify and disclose the 'quality' of university research and teaching systems. Various issues to be faced by business schools in the future are explored, with a focus on industry collaboration for research and conclusions drawn about future directions.

CONTEMPORARY RESEARCH ISSUES IN AUSTRALIA

According to Watt (2015, p. 1) '… the overall quality of the Australian research sector is high by OECD standards, but Australia's performance is poor when it comes to translating publicly funded research into collaboration with business'. In fact, of the 26 OECD countries Australia ranks last in the proportion of firms collaborating with higher education and public research institutions in respect of innovation. This is despite ranking highly in the OECD on indicators of research quality. Watt (2015), in his review, covered a range of research issues, including new

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1. https://go8.edu.au/sites/default/files/docs/article/go8_457_visa_response_19042017.pdf
2. http://www.senatorbirmingham.com.au/Latest-News/ID/3280/2017-pilot-to-test-impact-business-engagement-of-researchers

approaches to funding, business-focused research collaboration programs, and assessment of impact and engagement.

Several Watt Review recommendations are of specific interest to business schools. Watt (2015) recommends changes to the distribution of research block grants, with research support grants to be based equally on Category 1 and Categories 2–4 research income. In addition, research training grants are to be based equally on student completions and research income. Publication points are no longer the key driver as in the past. It is now engagement, impact and research income that will most likely count for future government funding. Assessment of the economic, social and other benefits of university research through an impact and engagement evaluation framework will also influence future research funding. This evaluation is to take place at the same time as the 2018 ERA exercise. Also, there is a suggestion that universities revise their appointment and promotion policies as a means of ensuring that the value of business experience is recognised and that those who have spent a period of their career in business are not disadvantaged in the staff appointment process. This would be a step-change on current policies where a PhD and publications are usually the key criteria in appointments and promotions. The government has responded to these recommendations with an agenda for future research as outlined in the next section.

THE NATIONAL INNOVATION AND SCIENCE AGENDA

Following the Watt review, the Australian Research Council (ARC) and Department of Education and Training issued the *National Innovation and Science Agenda – Engagement and Impact Assessment Consultation Paper* in 2016 (ARC and Department of Education and Training, 2016). It canvasses a range of options but, being a consultation paper, it does not offer any solutions. The purpose of the document:

> … is to seek the views of stakeholders on the framework for developing the national assessment of the engagement and impact of university research. It provides an overview of the current Government's policy rationale,

parameters and key issues regarding university research engagement and impact. Feedback is invited from all stakeholders including the higher education research sector, industry and other end-users or beneficiaries of university research. In addition, the perspectives of industry and other end-users or beneficiaries of university research will be addressed through additional consultation mechanisms.

As part of the National Innovation and Science Agenda, the Government is investing approximately A\$3.5 billion in university research. It also aims to introduce a national engagement and impact assessment, assessing non-academic impact as well as industry and end-user engagement. The government argues that the national evaluation will demonstrate how universities are translating their research into economic, social and environmental impacts (ARC and Department of Education and Training, 2016). The impact and engagement assessment will be conducted by the ARC, as a companion exercise to the 2018 ERA.

The ARC and the Department of Education and Training state that they will produce specific measures of impact and commercial success, as outlined in the consultation paper on engagement and impact assessment (ARC and Department of Education and Training, 2016). The Australian Business Deans Council (ABDC) has responded to the consultation paper, outlining its thoughts on Industry engagement and Australian business schools (ABDC, 2016). Professor Stephen Taylor, the ABDC Research Scholar, participated in the Chartered Accountants Australia and New Zealand Accounting Frontiers Forum, 'Expanding collaboration between universities and industry in Australia and New Zealand', in Sydney on 12 December 2016, outlining the ABDC response.[3]

The following is a brief summary of several key issues raised in the consultation paper, the ABDC's response and at the Frontiers Forum. It discusses the key questions of what are impact and engagement and is *what* is being measured as important as *why*? The ARC announcement states that it measures research *engagement* and research *impact* – however,

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the definitions of these key terms vary for different purposes. Also, the ARC has released information about the pilot assessment that promotes an agenda of greater business and university collaboration, yet excludes business disciplines.[4]

The ABDC's response and the Frontiers forum make the following points.

- Engagement covers a huge range of activities and looks different from one discipline to another.

- Will evaluation be metric based and beneath the ARC's definition of impact and engagement, which means it is unclear what metrics underlie the definition? Impact and engagement are not the same and cannot be captured by simple metrics.

- Why do we have a national measurement exercise? The evaluation exercise is designed to modify university behaviour as it appears the ARC believes universities are not sufficiently focused on industry research. The ARC has claimed that quality of research in Australia had increased because of ERA (see, Acil Allen Consulting Pty Ltd, 2013).

- Surveying performance does not automatically create a change in performance. We need to be careful of what we measure because measurement itself will create an effect and may lead to significant unintended consequences. There are a huge variety of ways in which academics engage and disseminate research.

- Where do research ideas come from? Academic journal articles reflect what researchers observe happening in the world (e.g., from reading the newspaper, consulting, executive education, etc.). Relying on metrics means that the ways academics engage may be lost.

Ultimately the question remains: How can engagement be measured? It cannot be reduced to a simple formula.

The ABDC's submission argued that prior to any assessment exercise, an examination should be undertaken as to why collaboration does not take place. If there are clear benefits but collaboration is not happening then that is the question that should be addressed before launching into an expensive measurement exercise. Currently, there is a debate in

Australia around separating research and teaching – if the mission of the university is to provide inquiry-led content, then there is a logical link between research and education; arguably this is more so for business schools than for other disciplines. We have seen a shift in the role of the ARC from granting to assessment – but why? Why does the Government spend A$60 million (government estimate) on an assessment exercise and then not use the output? It is ironic that universities have been influenced by the ERA to focus on measurement by publications, and now are criticised for not focusing on wider forms of impact.

It is important to appreciate that in developing the framework for the assessment of future research, the *Consultation Paper* for stakeholders (ARC and Department of Education and Training, 2016) has been framed by several areas: definitions and scope of assessment; key issues in undertaking the assessment; and what type of indicators will be used for assessing engagement and impact. The extract in Table 1 provides an indication of the government's thinking and possible impact on the research currently undertaken by business schools.

It is apparent from the questions highlighted in Table 1 that final decisions on definitions and scope, key issues and types of engagement and impact indicators could directly affect the future directions for research in Australian Business Schools. It would not be just a matter of having publications in good journals but what impact, if any, do these publications have? In what ways is our research engaged with industry and the real world of business?

A contemporary inquiry by the Joint Select Committee on Trade and Investment Growth into *Australia's Future in Research and Innovation* (Commonwealth of Australia, 2016), noted that:

> Australia has world-class universities and research organisations but is ranked last in the OECD in research-business collaboration. Strengthening the relationship between our innovative businesses and our research organisations will be crucial to Australia's economic success in the coming decades.

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4. http://www.arc.gov.au/news-media/news/national-innovation-and-science-agenda

TABLE 1 THE CONSULTATION PAPER FOR VARIOUS QUESTIONS OF STAKEHOLDERS

DEFINITIONS AND SCOPE

1.	What definition of 'engagement' should be used for the purpose of assessment?
2.	What definition of 'impact' should be used for the purpose of assessment?
3.	How should the scope of the assessment be defined?
4.	Would a selective approach using case studies or exemplars to assess impact provide benefits and incentives to universities?
5.	If case studies or exemplars are used, should they focus on the outcomes of research or the steps taken by the institution to facilitate the outcomes?
6.	What data are available to universities that could contribute to the engagement and impact assessment? i. Should the destination of Higher Degree Research students be included in the scope of the assessment? ii. Should other types of students be included or excluded from the scope of assessment (e.g., professional Masters-level programs, undergraduate students)?

KEY ISSUES

7.	What are the key challenges for assessing engagement and impact and how can these be addressed?
8.	Is it worthwhile to seek to attribute specific impacts to specific research and, if so, how should impact be attributed (especially in regard to a possible methodology that uses case studies or exemplars)?
9.	To what level of granularity and classification (e.g., ANZSRC Fields of Research) should measures be aggregated?
10.	What timeframes should be considered for the engagement activities under assessment?
11.	What timeframes should be considered for the impact activities under assessment?
12.	How can the assessment balance the need to minimise reporting burden with robust requirements for data collection and verification?
13.	What approaches or measures can be used to manage the disciplinary differences in research engagement and impact?
14.	What measures or approaches to evaluation used for the assessment can appropriately account for interdisciplinary and multidisciplinary engagement and impact?

TYPES OF ENGAGEMENT AND IMPACT INDICATORS

15.	What types of engagement indicators should be used?
16.	What types of impact indicators should be used?

A key recommendation by the Committee was that the Department of Education and Training review overseas models of university–business collaboration, with a view to identifying strategies that could be introduced in Australia.

One of the authors of this paper contributed to a submission to the inquiry about university–industry collaborations. Guthrie et al. (2016) argued that strengthening the relationship between innovative businesses and research organisations is crucial to Australia's economic success in the coming decades. Several important questions were posed.

- What are the barriers and enablers to university–industry collaboration?
- How can different types of collaborations be coordinated and managed?
- What do industry partners value in collaboration?
- How can we improve universities' interactions with industry?

In answering these questions, the submission explored two academic papers summarising European experience. Nielsen and Sort (2015) and Nielsen and Cappelen (2014) studied a broad range of university–industry collaborations at two Scandinavian universities over an 18-month period. Both universities had strong ties with industry and were regarded as 'good practice' examples in their respective countries. The university–industry collaborations studied included researcher–company collaborations, student–company collaborations, and cooperation including students, researchers and companies.

The findings of the study provide some useful lessons for Australia in trying to foster better relationships between universities and industry. The submission noted the following.

- Agreeing on ambitions, expectations and objectives at an early stage is critical for achieving knowledge transfer that was equally valuable to all parties involved in the collaboration. Researchers had problems in understanding the value of the university–industry collaboration as seen from the industry partner perspective, in turn causing them to miscalculate the incentives of the industry partners. The respondents indicated a need for greater alignment of expectations prior to the

project, where the issue of the companies' return on investment of time and effort needs to be addressed, as well as the expected frequency and intensity of interaction and planning for re-assessment of expectations along the way.

- The search process for partners was often characterised by the use of informal connections. This means that the assessment of potential partners is often very limited.
- Flexibility should be incorporated into the planning of university–industry collaborations, but this generally requires a better communication between the partners involved.
- During the stages of process and termination, project management affected value creation at all the different life-cycle stages of collaboration. The data revealed the need to distinguish between project success and project management success in university–industry collaborations and it was generally found that the partner with the shortest time horizon would take the project management lead. Typically this was the companies, in some instances the students, and very rarely the researchers.
- Sharing knowledge at all stages of the process was important, and process involvement was an important mechanism for knowledge sharing.
- It is important that the involved parties view each other as equals and creating a better understanding of roles and competencies of the involved parties can help diminish this problem.
- Continuous knowledge sharing throughout the project seems more highly valued by the involved parties than does a final report.
- From the university perspective, there is a need for providing incentive structures that encourage interaction and collaboration with companies and also to reflect the workload associated with including students in on-going research projects.

The synthesis of this research has led to frameworks for understanding, analysing and measuring the success and performance of university–industry collaborations (Nielsen and Sort, 2015; Nielsen, 2016). These frameworks can be of use to policy makers exploring how to react to contemporary changes in the research environment and are considered in the following section.

EXCELLENCE IN RESEARCH IN AUSTRALIA

This section examines how Australia's research assessment exercise, along with the development of research performance metrics, fits into defining research outcomes within a changing policy context. The historical evolution of an Australian research assessment exercise initially in the form of the Research Quality Framework (RQF) in 1985 and then subsequently in the shape of the ERA in 2011, and its succeeding iterations up to 2018, are considered in brief. Note that over time, Australian governments have moved their main research assessment mechanism from impact to journal rankings, to journal 'quality', citations and, latterly, the prospect of industry impact engagement for the 2018 ERA assessment. Such changes in output/outcome measurements necessitate a move from quantitative (e.g., count the number of journal articles) to qualitative (e.g., narratives about industry impact) evaluation.

The development of a research assessment exercise in the form of a RQF took place during the debate surrounding metrics that had been used to link research quality processes to performance-based funding, identified as lacking 'rigorous assessment or research quality and an inability to generate robust data to meet accountability and international benchmarking needs' (Harman, 2009, p. 153). The proposal to establish an assessment system similar to the UK's Research Assessment Exercise (RAE) was first foreshadowed in January 2000 (Howard, 2001).

However, the RQF was not implemented, as there was a change in the Federal Government and, in February 2008, the Labor Government announced that ERA was to replace the RQF. The ARC established ERA as a national system for the assessment of research in universities. The exercise was to be trialled in 2009 and implemented in 2010 and will still be operational during the 2018 exercise. Officially, ERA aimed to identify and promote excellence across the full spectrum of research activity, including both discovery and applied research (ARC, 2008). It would assess the quality and impact of research in Australian universities and facilitate an allocation of grants based on each university's performance relative to the others. However, few government funds were ever allocated

based on ERA scores, and its measurement of quality changed over the period from an evaluation based on number of scholarly articles (mainly journal articles), to quality of the journal, to citations, to impact concerning industry engagement.

The ERA exercise turned into a university performance management system (PMS) with several serious consequences. For instance, Martin-Sardesai et al. (2016), undertook an examination of the perceptions of individual academics about PMS developed by an Australian university to meet the Government's research assessment requirements. They found that academics reported increasing levels of stress and decreasing levels of job satisfaction, consistent with research that identifies the commodification of academic research. This process of commodification has occurred as a result of the implementation of PMS designed to assess academics' research-focused performance under the ERA. What the paper reveals is a disconnect between the macro-institutional demands placed on the Australian higher education sector, the changes implemented by universities to meet these requirements and the ability of academics to address these demands. The research is consistent with studies that have found various changes in government research policy in recent years have had a negative impact on academics, including increased academic workload and stress levels (e.g., Vesty et al., 2016; Martin-Sardesai and Guthrie, 2017; Martin-Sardesai et al., 2016, forthcoming).

These studies support the international literature on the impact of research assessment exercises on academics, including that published by Broadbent (2010, 2016) and Edgar and Geare (2010) on the experiences of academics in the UK and New Zealand. A particularly relevant observation by Martin-Sardesai et al. (2016) is that by considering the concerns of academic staff, university management will hopefully make the necessary improvements in PMS. These need to take into consideration the overall performance (i.e., teaching, research and service) of academics, rather than an unbalanced focus on the research component, as defined by A* articles, of an academic's work performance. It is interesting to note that the ERA has not made use of journal rankings since 2010, and while

universities have continued to use them internally, it is the ARC's firm view that this should stop.[5]

Also, Vesty et al. (2016), in examining the impact of ERA on accounting academics, noted increased teaching loads, combined with pressures to publish in the limited outlets available, has intensified the burnout potential among accounting educators in Australia and New Zealand. The participants in the survey commented on high levels of cynicism, stress and exhaustion as being key elements of burnout. The findings of the study indicate increasing job dissatisfaction in the accounting academy, consistent with prior literature. In particular, respondents to the surveys and interviews expressed concern about the growing pressure from research demands, coupled with growing competition to publish in the small number of high-ranked accounting journals, such as those in the ABDC list. For instance, there are few A* and A level journals in accounting compared with other business disciplines, with staff discouraged by Heads and Deans from publishing in B or C level journals, thereby exacerbating the problems. As virtually every university in the world has an accounting department with many academics increasingly under pressure to publish, the resulting competition and associated stress are not surprising.

Broadbent (2016) presents a current review of the REF in the UK, based on her observations and work as a REF reviewer and a panel member. Her fundamental argument is the importance of impact in the sense that academic research should engage with practice and policy-making. In her discussion, Broadbent (2016) raises several issues that are worth considering, and key points from her paper are briefly noted below, as they provide a useful insight for Australian business school academics.

> The first issue to highlight is that research impact is significant and, in our context, this means that engagement with policy and practice is important. It is important for academics because we are committed to research and should, therefore, be committed to ensuring our research counts (p. 22) … The second issue is that we should recognise that academics, accounting practitioners and accounting policy makers are all part of the same profession and do different but complementary things. This has been expressed as "worlds together" rather than "worlds apart" (p. 23) … The third important issue is that communication is foundational for impact, for the profession as a whole but particularly so for researchers. As academics, our role is to address issues through research and to evaluate practice and policy and to consider alternatives … the skewing of incentives to academic journal publication has led to a "scores on the board" approach from some academics, who are interested only in achieving publications in top-rated journals. In short, academics have left themselves open to the criticism that they simply write for each other, and it is this type of activity which has been rewarded, to the benefit of Higher Education Institutions and academics themselves. This is one reason why we now have the inclusion of impact measurement in the REF (p. 24) … The fourth issue is to stress the importance of accounting education in the context of impact. The way in which our new accountants are educated and trained is important because new hires in accounting in companies are a possible important way in which new accounting knowledge is brought into firms … If we do not embed the excitement of research into our teaching, then education will become little more than can be gained from reading a text and lifeless. Our students will not emerge as thinkers, but as apparatchiks with nothing to offer in novel situations (p. 25).

The reason the above well-articulated issues are important is that academia is now faced with a different PMS in the UK – the recent REF was based on impact and industry collaboration. The same perspective is emerging in Australia. Governments are changing the national ideal for university research quality with impact now seen as a key criterion for measuring research output, leading back to our initial question: How should Australian business schools react to contemporary changes towards research and engagement in the Australian higher education system?

BUSINESS SCHOOLS INTO THE FUTURE

The PMS in use by Australian Business Schools for measuring workloads and research expectations have to be modified to encompass the Watt Report recommendations. There will be a renewed emphasis on allocating workload to appropriate staff who can focus on, and connect with, industry. Academic study leave rules will need to be broadened to encourage research income generation and also encourage staff placement in industry. Incentives for generating research income will need to be put in place (e.g., salary loadings for academic staff successful in gaining research income). Due weight to research income generation and industry experience/networks will need to be considered in future staffing appointments. This will require business schools to re-think how they recruit and value staff. School Advisory Boards will need to be used as leverage to develop strong networks into companies and the professions.

The world is changing and changing fast, and successful business schools will adapt. Based on government reviews and policy, the days of business academics just concentrating on journal publications are numbered. The Australian Government is requiring a lot more from universities in exchange for the funding they receive, and that includes business schools, which have to engage with the professions and business if they are to remain relevant (Evans et al., 2011; Laughlin, 2011). Business schools adapted to change in the past when the ERA was introduced and will do so in the future, as the new paradigm for research measurement and impact unfolds. The role of the ABDC will become increasingly important in providing leadership and a focus on business schools to better engage with government policy makers, university management and industry. We can learn a lot from the experiences of our colleagues in the UK.

As the process by which impact is to be measured becomes more apparent, business schools should modify their recruitment practices to include a mix of staff with the required experience, in order to emphasise collaboration with industry to solve problems and, in doing so, attract more industry research funding. In contemporary times disruption is evident everywhere in business, government, educational institutions and society generally.

We also now have on a global scale recent disruptive events such as Brexit and the election of Trump in the US. The issues facing business schools include social change, new technology and more accountability for the funding provided by the Government, together with on-going reliance on international student fees to balance budgets. Business schools will also need to become much more entrepreneurial and innovative in forming partnerships with corporations and government agencies in order to demonstrate engagement and impact from their research.

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Improving Collaboration Between Commerce and Business Researchers to Improve Innovation

GEOFFREY STOKES

In 1845, Benjamin Disraeli's novel *Sybil*[1] portrayed a stark contrast between the 'two nations' that he saw existing in the United Kingdom at the time:

> Two nations; between whom there is no intercourse and no sympathy; who are as ignorant of each other's habits, thoughts, and feelings, as if they were dwellers in different zones, or inhabitants of different planets; who are formed by a different breeding, are fed by a different food, are ordered by different manners, and are not governed by the same laws.

Disraeli, who was to become a Conservative Prime Minister of the United Kingdom, was drawing attention to the two nations of rich and poor in that country. With slight qualification, however, and change of location, the same sentiments could be applied to the worlds of commerce and business research, or more broadly, industry – business, government, and community organisations – and university research, in Australia.

Indeed, the topic of the 2017 Chartered Accountants Australia and New Zealand and RMIT University Thought Leadership Forum – and of this publication – suggests we live in these two radically different worlds, and this situation creates serious impediments to collaboration and communication between them. The articles in this publication set out a number of key questions on these issues. The purpose of this article is to explore several issues concerning the barriers to, and enablers of, improving collaboration between universities and industry, government and the community. I begin by taking up three key questions and make a few observations about them.

- What are the barriers and enablers to university–industry collaboration?
- How can we improve universities' interactions with industry?
- How can we collaborate to advance innovation?

In so doing, I will indicate the steps RMIT University is taking to address the problem.

In Australia, the level of research collaboration between universities and business is amongst the lowest in the OECD. That is quite a significant comparative fact, which begs the question: Why is this so? One is brought up to believe that business is always out there pushing the boundaries of markets, doing whatever it can to create new markets, increase profits, and thereby to succeed. We are told that research and development (R&D) drive much innovation. For Australian business, apart from a few firms, the main role of R&D is to drive tax minimisation. Yet Australia has experienced an almost unparalleled period of economic growth, and apparently with relatively little substantive expenditure on R&D, nor much home grown innovation.

Another indicator of the broader problem of the 'two nations' is that Australian industry has one of the lowest levels of employment of PhD graduates, especially when compared to the US or Japan. Does this difficulty arise from the nature of PhD training in Australia, or business attitudes to it, or both? Certainly, Australian PhDs are usually oriented towards 'academic' outputs, such as publications. It cannot be the case that an Australian PhD, whatever the discipline, *inherently* stifles creative and critical

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1. Disraeli, B. (1845), *Sybil or the Two Nations*, Longmans, Green, and Co, London, p. 76.

thinking about the 'real-world' problems of commerce and industry. Could it be that there is an inherent and widespread suspicion of 'eggheads' or 'boffins' that encourages industry to resist employing graduates with PhDs?

We must inquire further about whether there is anything special about the Australian economy or Australian business that contributes to this disconnect between industry and researchers? Is there something flawed about the culture of Australian business? For example, does this problem have its origins in the popular attitude that Terry Cutler has noted, of business taking a 'lifestyle approach'?[2] Is it the nature of the government structure of rewards, incentives and markets? It is widely argued amongst policy makers that if only industry and researchers could get together then more innovation would result. Without reviewing the comparative studies and other impediments to innovation in Australia, I am not confident that just bringing the two together would automatically produce more innovation in any of its forms. Yet, if we do accept that low or faulty collaboration is part of the problem, there are very practical barriers that need to be overcome.

I have a few undeveloped thoughts about what they may be. Let us begin by considering business. Why would a business want to collaborate with universities and researchers? Much of our life and work is driven by needs. If one does not have a need to collaborate with researchers, why would one do it? Is it that, according to the general indicators, the wider Australian economy is operating reasonably well? (And here I am not taking into account the changing nature and patterns of work, rising inequality and levels of poverty.) Within such an economic context there may be little internal motivation to collaborate. In their personal lives, Australians are widely regarded as first adopters of new technologies, but not the first creators. It may be the case that where innovation is needed, it is readily available from elsewhere, and we can afford to buy it 'off the shelf', as it were. If so, it would not be rational for a business to invest in the costs required by innovation.

Then there is the issue of communication. From my experience of working in universities and government, as well as interacting with business people, there appears to be two separate 'worlds' or incommensurable 'paradigms', where communicating between them is exceedingly difficult. One rendition of this view is that businesses live in 'the real world', whereas university researchers somehow live in an 'unreal' world. This encourages researchers and business people to believe that their languages are so different that they cannot communicate with each other. There is some truth to that view. In business and in universities, the level of jargon, which is a product of disciplinary specialisation and 'management speak', for example, tends to impede communication. In universities, it is evident that we often do not know how to communicate what we have to offer to a wider audience. It may also be the case that business is unable to express its needs sufficiently clearly. On this view, the relationship is a dysfunctional one, requiring communication counselling.

Pursuing the theme of needs and communication with respect to universities we may also perceive other structural barriers to building an effective relationship. What do university researchers need? Most researchers would say we need more money and time. Despite the various fluctuations in government provision, university researchers are reasonably well covered. More funding would be welcome, and except perhaps for those fields of science and technology that require the highly expensive state of the art technology, instrumentation and facilities, much research can be done with the time and funds on offer.

A *significant cultural and practical issue* is that the rewards in the university are largely for producing academic outputs, such as articles in the top journals, or scholarly books. There are few rewards for those whose work consists of linking with business. The lead times are long for both sides, and the 'payoff' is uncertain. There are, of course, academic staff who enjoy working with industry and who spend much of their life and careers dedicated to these activities. Until recently, however, there has usually been little formal recognition in the university sector. Accordingly, there exists a tension between the imperative to publish scholarly papers and that to engage and deliver impact for industry.

Then there is another difficulty. When university researchers consider industry, they often think only in terms of money, that is, funding for research. To adapt what former Australian Prime Minister Paul

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2. https://www.crikey.com.au/2010/11/08/terry-cutler-the-dearth-and-decline-of-innovation/

Keating has said about state premiers: one should never stand between a researcher and a bucket of money. Here it must be acknowledged that grants are important for researchers: the more funding one can attract, the better this is for their careers. To begin by asking for money, however, is not the optimum way to start a partnership with industry. A new approach is needed. First, we need to understand that working with industry requires both sides getting to know each other well and entails a longer time frame. The university researcher must try to find out what industry needs from an industry point of view, not just what the researchers require, or what they think industry might need. One of the questions here is whether industry can articulate clearly what those needs are. Many in industry are able to do this. Nevertheless, more often businesses think about their research needs in terms of consultancies that can often be completed in a short period of time, say three to six months.

University research is usually different. It does not follow the template that the large consultancy firms might use. Furthermore, universities do not, and cannot, deliver as rapidly as consultants. There are many other activities to which researchers are committed: academic staff have to teach; they have to engage in all sorts of administrative service; they have to travel overseas; they have to write papers; supervise PhD candidates, and so on. If industry is looking for quick results from universities, they will not always get it, because there are not sufficient numbers of full-time researchers who can operate within those short timelines. Industry, therefore, needs to understand the time limitations upon researchers. This is often the case even with the CSIRO, a body that was established as a dedicated research organisation with a mission to address the larger problems confronting industry in Australia.

Given these constraints, is there any advantage to accessing *university* research? Why would industry consider university collaboration rather than using a consultant? One reason industry seeks out university research is because, usually, the work done is very thorough. It is embedded in the very latest knowledge and guided by the highest levels of integrity. When industry receives reports and results from a university, at least ideally, it should be the best that can be delivered. This is the one characteristic that makes academic research stand out. The message here is that when university researchers work with industry they are not just undertaking a consultancy. The researchers may also want to use the data and results for the purposes of publications, which raises issues of intellectual property.

With this context, a different strategy is needed, and governments and universities have been searching for one. One outcome has been to encourage research with 'impact'. The Federal Government has been conducting three-yearly research quality assessment exercises called Excellence in Research for Australia (ERA). Universities are preparing their submissions for the 2018 ERA, and the Commonwealth Government has added two other criteria: *engagement* and *impact*. Universities now have to address these criteria as part of the exercise for assessing the quality of their research. Consequently, in what represents a major change, all universities will be working towards presenting their research record in terms of engagement and impact over the next year, and beyond.

In addressing these issues, RMIT University itself is leading the way by shifting how it encourages and rewards research. Under the leadership of Calum Drummond, the Deputy Vice-Chancellor Research and Innovation, the University has established eight new research structures, termed research enabling capability platforms (ECPs). They cover nearly all fields of strength in STEM (science, technology, engineering and mathematics) disciplines as well as in the many humanities and social science disciplines, including those in business. They are as follows:

- Advanced Manufacturing and Fabrication;
- Advanced Materials;
- Biomedical & Health Innovation;
- Information & Systems (Engineering);
- Urban Futures;
- Social Change;
- Global Business Innovation;
- Design and Creative Practice.

A worldwide search was conducted to appoint the eight directors and they are already lining up industry partners and engagement activities with researchers. The aim is to forge those collaborative links that

are essential to stimulating innovation and to put significant amounts of research funding behind them. RMIT is not going to wait for government or industry funding, though that would be useful.

For the College of Business, the ECP Global Business Innovation, led by its Director Professor Anne-Laure Mention, is most closely aligned to the topics that are being discussed in this publication. In the College of Business, we have established five research priority areas and have committed funds to them so that they can foster both excellence and impact in collaboration with industry. They are:

• Governance, Accountability and the Law;
• People, Organisations and Work;
• Markets, Culture and Behaviour;
• Entrepreneurship and Innovation;
• Global Supply Chain Management and Logistics.

It is important to recognise that when we talk about innovation, we are not just talking about new technology. We are talking about how to build better and innovative relationships between business and research. We are also talking about better *services*, better ways of managing people and technology, including better work practices. Innovation is not just about producing new technical inventions, though these are important. Research must be directed towards innovation in processes and services. It is here that the priority area of *People, Organisations and Work* is relevant. There is much room for innovation in how we collaborate with each other in many, diverse, organisational contexts.

Markets, Culture and Behaviour is another area in which innovation is crucial. Creating and understanding new kinds of markets and exploring the culture and behaviour within them is vital to innovative thinking. The priority area of *Entrepreneurship and Innovation* probably lies at the heart of most attempts to generate new products, services and processes. The researchers in *Global Supply Chain Management and Logistics* take up the vital problems of how we transport the resources and components needed for industry to different locations and then convey the products to various markets. According to the literature – both popular and academic – it is clear that many of the major efficiency gains that remain in manufacturing lie in supply chains because very few

products are made in just the one place. The resources and components that comprise the product to be manufactured have to be transported from around the world. If a firm wants to produce a mobile phone, for example, they also have to get it to market quickly and sell it. This means that the speed of the supply chain is important. This research field is also concerned with how we can make supply chains environmentally sustainable. Our College researchers are investigating these new models of supply chains, and they have the most amazing quantitative and data skills to deploy on these problems.

What the College of Business is doing is establishing new research structures and groups that are themselves innovative. These units will focus our efforts not only on excellence, but also on knowledge transfer for the benefit of industry, economy and society. The latter task demands research collaboration with industry. For us to overcome the present condition of being 'dwellers in different zones, [and] inhabitants of different planets' stronger lines of communication between industry and researchers need to be established. The Chartered Accountants Australia and New Zealand and RMIT University Thought Leadership Forum, and this publication, are a major step in this process because they can push further that kind of thinking and practice. By means of such analysis, dialogue and robust critique, we may be able to reduce the distance between the 'two nations' of industry and university research and thereby foster a stronger collaborative culture of innovation. Chartered Accountants Australia and New Zealand and the School of Accounting at RMIT University are to be commended for their initiative in generating discussion on this topic.

Improving Collaboration and Innovation Between Commerce and Business Researchers

SHARON WINOCUR

Australia[1] has often been described as 'The Lucky Country' following Donald Horne's publication in 1964.[2] Over the past five decades the phrase has become a source of comfort during difficult economic and social periods. This is despite the original ironic intention of the title that was designed to serve as a wake-up call to the nation that luck cannot compete successfully over innovation. The fact is that Australia is indeed lucky to hold rich natural assets that are in high demand and to have matured into a society with a world-class standard of living. But Horne's warning was prescient, particularly as other nations have responded swiftly to technological, economic, social and political challenges through innovation. Australia has somewhat belatedly taken up the innovation agenda and the government now recognises that innovation is the prime driver of the 21st century that will create the jobs of the future, which will be necessary in order to sustain ongoing prosperity.

For this reason, the National Innovation and Science Agenda (NISA) was launched in 2015 to help innovative businesses support partnerships in world-class research between entrepreneurs and industry, build on Australia's strong record in science and exponentially grow the commercial value of ideas.[3] NISA's policies and programs are all about investment for the future with attention on what must be done *now* using the most durable and reliable resource this country can produce – creativity and ingenuity. The NISA initiatives illustrate the government's emphasis on stimulating research activity, and its application and translation for business outcomes so that business is encouraged to engage more effectively and ultimately reap the benefits.

As an organisation whose vision focuses directly on Australia's innovation potential that will be realised through productive collaboration between business/industry and the higher education sector, the Business/Higher Education Round Table (B/HERT) welcomed the introduction of NISA for igniting the national conversation about the value of innovation. There is a heavy emphasis in the policy on collaborative research, lifting the role and importance of science and entrepreneurship for both business and universities. The intention is to fuel greater business engagement in Australia's strong research activity that will translate into successful commercial outcomes. Incentives are being developed to create improved research investment opportunities and to encourage increased employment of researchers into business so that the skills that contribute to innovation are able to be accessed more readily across a greater number of industry sectors. New translation funds supporting co-investment along with vehicles to encourage early-stage investment have been rolled out. Industry growth centres have been created in areas of national strategic priority, and their prime objective is to drive innovation by connecting businesses and industry organisations with research and technical expertise to solve 21st-century challenges. Through co-location,

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1. This paper is based on an article originally published in Winocur (2017), 'Creating the Lucky Country', *INSIGHT*, www.aceeu.org
2. Republished in 2008, Penguin Books. See also http://www.australia.gov.au/about-australia/australian-story/lucky-country
3. Taken from the speech by the former Minister for Innovation, The Hon Christopher Pyne MP, http://www.innovation.gov.au/page/industry-innovation-and-science-minister-christopher-pyne-national-innovation-and-science

technology transfer is facilitated between industry and higher education by creating a space where entrepreneurship is encouraged and innovation can thrive. Co-location also opens up opportunities for students to engage in interactive learning, relevant skill development and real-time interactions with real clients – skills that will be valued by future employers.

NISA certainly has improved our understanding of innovation as a vital component of the economy. Australian universities have enthusiastically embraced the agenda through demonstrated prominence given to entrepreneurialism, accelerators, increased attention to applied research and translation potential and, most importantly, education focused on the skills required for today's modern economy.

The contributors to this volume have outlined the context for collaboration, a central component of the innovation agenda. We are well aware that Australian industry finds itself in catch-up mode in terms of innovation output as it transforms from a 20th-century manufacturer and exporter to a 21st-century competitor in the new digital economy that is developing rapidly in a more uncertain global environment. As a consequence, the collaboration message as the means to confront the impact of technology within the economy is absolutely critical in targeting business and industry directly.

Implementation of the innovation agenda is dependent upon an *informed and vibrant private sector* that understands where Australia needs to head and how it needs to transform. Business schools are the most appropriate vehicle to help redefine business models in this new knowledge economy, and to educate and retrain business people to exploit every opportunity to innovate and compete successfully. Business schools can bridge the gap between the commercial sector and higher education in demonstrating impact:

- through relevant collaborative research that is meaningful and of value to business and industry;
- through quality undergraduate and postgraduate education that addresses innovation through topics such as research translation and commercialisation, the digital economy, business processes that transform start-ups into successful SMEs, thereby providing Australia's future business leaders with the technological tools that underpin successful competition;
- by becoming the established central hub for business and industry to access university expertise and partners across faculties and disciplines; and
- by continuing to build on the successful reputation in international education and establishing business networks with international graduates.

Business schools have the potential to become a unique internal university service, as well as a valuable service to business clients. This different model is one that is not directly aligned with the current funding arrangements that emphasise academic publishing requirements and which create ongoing

pressures within the professional schools. But as we know i) the federal funding model itself is in a state of transition and will seek to embed impact as a core requirement, ii) not all business schools need to operate identically and, indeed, it is in their interest not to do so and, because iii) by not being seen to be major players contributing to the modernisation of Australian business, the question ultimately will turn to the relevance of business schools. Revenue from international education is a security buffer but not a stable one; applying expertise and resources that strengthen the nation's business sector is a durable and desirable resource that will continue. My message is not about how best to adapt to shifting policy environments but rather emphasises renewal where business schools become an indispensable national resource that stimulate innovation.

The framework settings for innovation are taking shape but the biggest challenge in creating the necessary momentum for change is a genuine acceptance that many of the big opportunities and risks Australia is tackling in the transition to a new global digital economy require extensive realignment in how we do business. Restructuring business schools according to their strengths (teaching, research, engagement, partnerships, etc.) means they are better placed to deliver the services that Australian business so desperately needs. What would some business schools look like if, in fact, they weren't attached to a university? If they were separate organisations, what would they be doing? How would they be operating? Greater diversity among the business schools invites external access to expertise and means that business specialists – who may also be academics – reside with business educators and researchers. Such diversification among the business schools may also offer varied income streams.

The good news is that expertise from quality business schools should be in high demand in Australia. While Australian universities are, year on year, improving their international rankings as high-quality educators and researchers, Australian business is relatively stagnant in productivity and innovation. What is it about universities that are working so well? What is it about business performance that is lacking? Business schools can fill that information gap.

The bad news is that if business schools don't review, refresh and renew, and if business is not using them as a resource, we may begin to question what business schools are offering.

Innovation is about embracing new ways of thinking, new ways of working and new ways of living, which involve significant cultural and organisational changes that are essential adjustments to a knowledge economy where disruption has become the norm. The challenge to an innovative Australia is the scale and speed of acceptance, by industry in particular, of these monumental and ongoing changes. The challenge for business schools is to nurture this culture of innovation and collaboration that will generate successful and sustainable new world industries led by outstanding business leadership.

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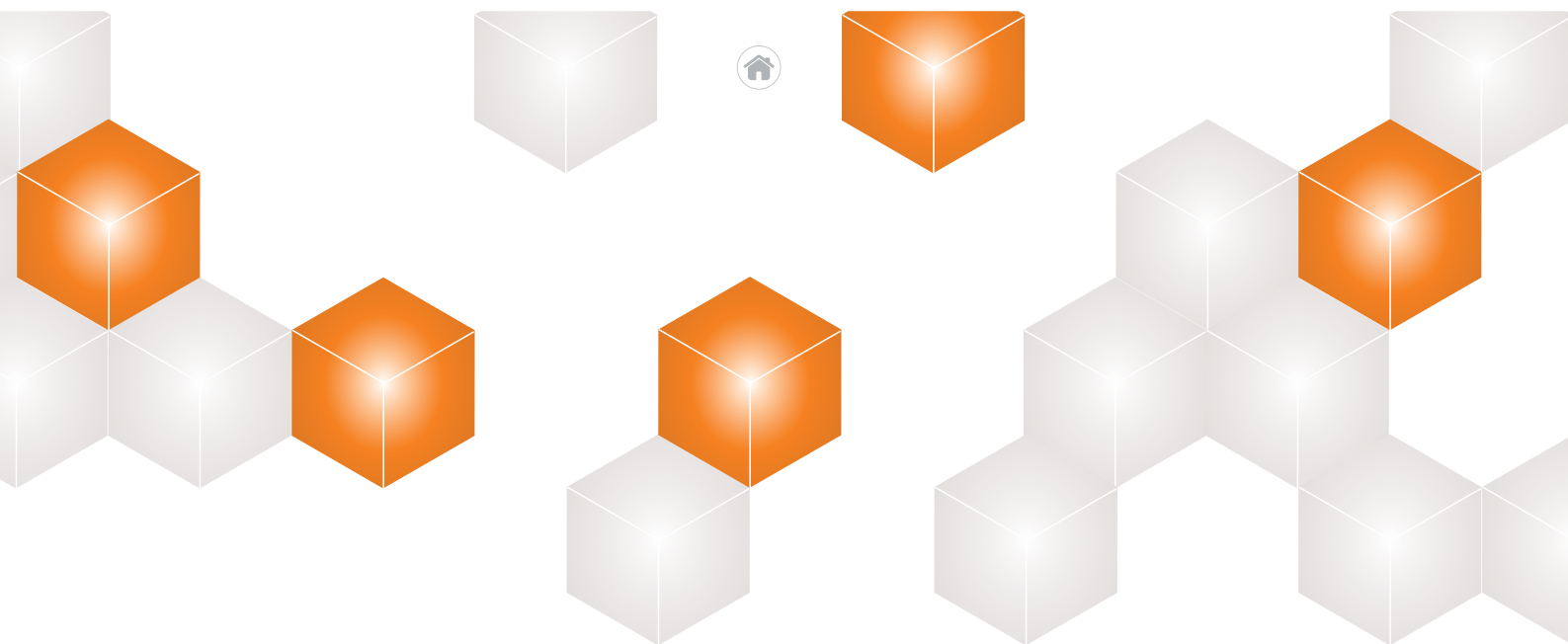
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