

# GLOBAL EDUCATION DIALOGUES STIMULUS PAPER

**TOWARDS THE FULLY ENGAGED UNIVERSITY:  
THE PARTICULARLY AUSTRALIAN CHALLENGE**  
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## **ABOUT THE AUTHOR**

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Mark has authored over 100 refereed articles and book chapters, and 12 books. He has been an advisor and consultant to the European Commission and to government agencies in the US, Japan, UK, Germany, Spain, Thailand, Taiwan, Korea and South Africa, and to numerous organizations in Australia. He has been an invited participant at international conferences in over 50 countries. He is a Visiting Professor at Imperial College Business School, London.

He has been a member of the Board of Directors of Nestle Australia Ltd, the Advisory Board of Thiess plc, and was founding director of the Think, Play, Do Group.

In 2007 Mark was awarded the Eureka Prize for Leadership in Business Innovation. In 2008 he was Special Advisor to the Government Review of Australia's national innovation system. He is currently a member of the Queensland Science and Innovation Advisory Council.

Mark is a member of the Editorial Board of Research Policy; Industry and Innovation; International Journal of Innovation Management; Technology Analysis and Strategic Management; International Journal of Technology Intelligence and Planning; and Management Decision. He is Editor-in-Chief of Innovation Management, Policy and Practice.

His current major research interest is the way the innovation process is changing, and what this means for firms, governments and research organizations. Other research interests include studying the role of science in services innovation; innovation in cities; the consumption of innovation; dynamic social networks; innovation in complex projects; theory of innovation policy; and the life of Josiah Wedgwood (1730-1795).

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## TOWARDS THE FULLY ENGAGED UNIVERSITY: THE PARTICULARLY AUSTRALIAN CHALLENGE

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### *Background*

As the university system developed around the world in the 19<sup>th</sup> and early 20<sup>th</sup> century, a significant number of institutions emerged whose core missions included comprehensive engagement with industry. Examples include Berlin University, Imperial College London, MIT and the land grant universities in the USA. These and many others were seen as important contributors to the ambitions of governments and business.<sup>1</sup> Universities were wellsprings of knowledge; sources of research insights into problems and opportunities in areas such as agriculture, manufacturing and urban engineering that were then transferred, transformed and utilised commercially in business. This process of getting ideas to market could be lengthy, and involved businesses investing in their own capacities to absorb the resultant knowledge, commonly in the form of R&D departments which grew rapidly in number after the 1920s. It worked for universities as their staff could engage with and be funded for problem oriented research agendas, and it had advantages for business as their long-term investments produced hard to copy advantages over competitors who had not undertaken such expenditure. This *complementary* model of interaction had its heyday between the late 19<sup>th</sup> century and the Second World War.

This model became ever more strained over time in the USA and UK. From the 1990s, especially, industry began to question the cost and returns of R&D functions, which were less relevant in any case as services, not manufacturing, became the major component of economies. Business attention lay with addressing the needs of fast-moving, hyper competitive markets, rather than the more leisurely creation of future solutions and options.

Universities, encouraged by governments, began to overvalue their contributions, manifested, unwittingly, through barriers being placed on the flow of knowledge by the creation of technology transfer offices with limited remits and a goal to raise income. New technologies and institutional players in increasingly knowledge-based economies began to erode the advantages universities had in knowledge creation and sharing. Academics, assisted by the increased availability of government research grants for autonomously determined projects and influenced by the demands of restricted assessments of research impact, began to disassociate from applied problems and concentrate instead on status within increasingly self-referential scholarly communities. The diversity that once characterised the university system narrowed, with the emergence of generic institutions concerned equally with research and teaching, with only passing or rhetorical concerns for meaningful engagement. This *detached* model reached its heyday in the 1990s and early 2000s, but is still in evidence today, arguably particularly in Australia.

The problems contemporary business faces are too complex and uncertain to be confronted alone, and firms have increasingly begun to search for knowledge externally. Their near term and profit targets additionally reduce their capacity to address these

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<sup>1</sup> Martin, B (2012) "Are universities and university research under threat? Towards an evolutionary model of university speciation". *Cambridge Journal of Economics*, 36 (3). pp. 543-565.

problems. Universities with their longer-term perspectives can contribute wide-ranging and independent insights necessary to identify and construct effective responses to the problems businesses face. Vexatious, complex problems elicit partisan views, and there is a premium on the impartial evidence and perspectives universities can provide. Constrained public expenditures on research, with increased accountability and compliance costs, and increasing global competition, have added to the attraction for universities of collaborating with business as sources of income. But there is no simple nexus between demonstrable research capability and the flow of funds. Universities have to work harder for resources and need to demonstrate the quality and significance of their activities in new and more convincing ways.

The changes needed in a new model of engagement require a fundamental redirection in the strategies of universities and their organisation. Rather than being isolated from the application of research to problem resolution, universities have to connect comprehensively with business, government and the community, to identify and co-resolve complex economic, social and environmental problems. We are moving to a *fully engaged* model of university/industry interaction.

### *Barriers to change*

Such a movement will be contested, but it should not be. A quick look at the 50 best-selling books about universities on Amazon reveals widespread reference to 'crisis'. Around half of these books refer to the disastrous consequence for academics in particular, and society more generally, of the 'commercialisation' and 'marketisation' of universities.

This is fundamentally misguided, but partially reflects the clumsy rhetoric of university leaders keen to demonstrate their business-like credentials to government and other research funders, and their overly optimistic search for a discretionary dollar in constrained financial circumstances. What is missing is a conversation about the value of engagement to academics, one that builds on the motivations of academics and the reasons why they engage; which is to do interesting and valued research.<sup>2</sup> The problems businesses face are confronting, presenting challenges that attract academics and make their research more focused and interesting. The opposition to engagement also does not recognise its value for educating employable graduates, or in building demand for university research and education.

The movement towards the fully engaged university will be especially challenging in Australia where any initiatives of scale and significance require an extraordinary concatenation of circumstances.<sup>3</sup> The connections between Australian universities and businesses are weak, and especially poor by international standards.<sup>4</sup> The reasons for this continued detachment include limited capacity in business to absorb knowledge

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<sup>2</sup> Hughes, A., Kitson, M., Bullock A. and Milner, I. (2013) *The Dual Funding Structure for Research in the UK: Research Council and Funding Council Allocation Methods and the Pathways to impact of UK Academics*, A report to the Department for Business, Innovation and Skills, UK-IRC, Cambridge.

<sup>3</sup> See, for example, Dodgson, M. and Staggs, J (2012) "Government policy, university strategy and the academic entrepreneur: the case of Queensland's Smart State Institutes", *Cambridge Journal of Economics*, 36, 2:567-586.

<sup>4</sup> See, for example, the evidence presented in ACoLA (2014) *The Role of Science, Research and Technology in Lifting Australia's Productivity*, Report for the Australian Council of Learned Academies, [www.acola.org.au](http://www.acola.org.au).

from outside, shortcomings in the strategic management of universities and in their incentive systems, poorly conceived government policies, and intermediary brokering institutions which complicate rather than facilitate transfer between research and industry.

Overcoming these impediments requires a widespread reconsideration of the value and nature of the flow of knowledge between its producers and users in contemporary economies, and the elevation of university/business engagement as a priority in industry, the research sector and government, manifested in more effective strategies and policies.

### *The university perspective*

The implications for universities in the fully engaged model include the greater need for focus and selectivity in the problems with which they engage, and hence the partners they choose to work with. In the face of increased competition from the private sector and digital sources, and with reduced government funding, universities have to deliver compelling offers around their particular abilities.

This may, for example, require continuous demonstration that 'solutions' to problems technological, medical, economic, managerial - in areas that deliver international competitive advantage, have to be holistic in perspective and are inseparable from the social, political and cultural context in which they arise and are resolved. Rare is the complex problem whose solution does not benefit from diverse insights from within the sciences, social sciences and humanities.

Making such cases, and contributions, means universities have to be better structured, organised and incentivised to be outward facing and internally integrated. They need to become better at boundary spanning externally and internally. At the same time they need to convince business and government that their contributions to these problems are distinctive, and can involve speculative inquiry with unknown outcomes. Universities need to build confidence internally and externally in their collaborative skills.

Strategic relationships with business have many mutually supportive components. They involve research, advice, consulting, and teaching. They can give business partners priority access to interns and the best graduates. Businesses become involved in curriculum development. Each of these areas feeds the others and the relationships grow stronger as each is actively pursued.

Organisationally, the new engagement requires experimentation with multidisciplinary research centres and 'public spaces'<sup>5</sup>, and new intermediary agencies that focus on 'exchange' and 'co-development' rather than the somewhat patronising 'transfer' of knowledge. New translational research institutes (and campuses) are needed to better articulate back into universities the demands and needs of business and improve the flow of valued knowledge from universities. Better utilisation of university public space is needed to encourage dialogue and the sharing of ideas.

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<sup>5</sup> See Cosh, A., Hughes, A and Lester, R (2005) *UK PLC Just How Innovative Are We?* Cambridge MIT Institute, for an analysis of the value of such public spaces.

In a system whereby tenure and promotion decisions remain weighted towards research performance (i.e.: publications), the question arises of how best to incentivise and reward external engagement. The professionalisation of university management needs to be sympathetic to the fiercely independent determinations of priorities by academics whilst crafting the alignment of these personal goals with broader organisational objectives. This will not prove easy, and a cohort of senior academics must develop that is comfortable and skilled at managing strategic relationships with business, while the traditional measures of academic status must be broadened to recognise the positive relationship between research excellence and engagement (see Hughes et al, footnote 2).

A vibrant higher education system is a diverse system; yet the prescription of the fully engaged university applies to all research orientated universities. Diversity is found in the level of engagement – international, national, regional and local – and in sectoral focus. The problems being tackled, and the range of institutions facilitating their being addressed, may differ but the need for deep and disciplined engagement within and outside of the university remains the same.

#### *The business perspective*

Leading international companies, such as BP, Rolls Royce and GSK, have highly strategic, multi-level, and long-term relationships with select universities. Such collaboration gives businesses insights into new technological and business opportunities, access to talent and instrumentation, and feeds that part of their portfolio that prepares them for the future.

There is little evidence of such engagement by Australian firms. Large firms in technology-demanding sectors in Australia tend to be overseas-owned, creating special vulnerabilities. Small firms often struggle in building collaborations in the absence of effective intermediary institutions. A preoccupation with cost cutting across Australian industry constrains investments in science, technology and research. Shortcomings in the quality of Australian management additionally restrict industry's absorptive capacity.<sup>6</sup>

#### *The government perspective*

The poverty of collaboration in Australia is a demand as much as a supply problem, so the government needs to learn from international experiences and prioritise schemes proven to improve absorptive capacity in industry. These include the US Small Business Innovation Scheme and its UK equivalent, and the UK's Knowledge Transfer Partnerships. Australia does not possess the rich mixture of institutions supporting the flow of knowledge between universities and industry found in its competitors. The public good role of long-term contributors, such as the CSIRO and Cooperative Research Centres, have been overshadowed by demands for (limited) measures of 'commercialisation', such as licenses and spin-offs. Initiatives such the InnovationXchange tend to be short-lived, and proven deeply embedded institutions such as AMIRA International face the challenge of fluctuating industry support.<sup>7</sup> There is great merit in exploring coordinating institutions such InnovateUK and intermediary

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<sup>6</sup> Green, R et al (2009) *Management Matters in Australia*, Report to DISR, Australian Government

<sup>7</sup> Dodgson, M and Steen, J. 'New innovation models and Australia's old economy', in Bessant, J. and Venables, T, (eds) *Creating Wealth from Knowledge*, Cheltenham, Edward Elgar, 2008.

institutions such as the Fraunhofers in Germany and Catapults in the UK, but these have to account for their specific idiosyncrasies and the particular deficiencies in Australia.

The main challenge for government – legislative and administrative is to develop a sound appreciation of the crucial importance of innovation to generate global competitiveness and employment and the role of university/industry connections that foster it. Government has been slow moving and is generally ineffective in its policies<sup>8</sup>, again through a variety of intersecting barriers to effective decision making and investment. Officials are cautious, hampered by their training that ill-prepares them for the everyday realities of disruption, risk and failure associated with science and innovation. They are also trained to react with caution to special pleading by industry groups including universities. Meanwhile business has been slow to provide a forceful supporting voice (although the Business Council of Australia is improving in this regard), and there is little independent, high-quality research in the field.

The economist Max Corden's description of Canberra's university policy as Moscow on the Molonglo, continues to be seen in its stultifying, compliance-focused, innovation-killing approach that constrains the professional judgements of university leaders, managers and staff and displays less and less trust in their competence. As an example, from the perspective of business the Excellence of Research in Australia exercise has focused academics' attention on publishing research papers and, given the nature of academic journals, this discourages interdisciplinary research. As business problems tend not to fit into the rigid categories of academic disciplines, the relevance of university research to business declines and distracts academics' enthusiasm to engage with business. The obviously sensible policy of letting universities determine their own strategies, their boundaries, priorities and organisation, upon which they will be judged, increases diversity and the richness in the types and modes of collaboration with industry. Although the higher education bureaucracy cannot be held responsible for the current political imbroglio surrounding reform of the sector, they are full partners in the fetish of continual review, using narrowly defined performance indicators, which blight organisations such as the CSIRO and CRCs. There is a compulsive urge to regularly pull the plant out of the ground to ascertain its health.

### *Conclusions*

Universities are crucial contributors to explaining and solving complex social and economic problems in areas such as health, energy and the environment, and stimulants to productivity and employment. They should never become instrumental tools for economic development, nor should they be led by the demands of the market. This diminishes universities and their contributions, reducing their role to mere outsourced consultancies for business, and it is not what progressive companies desire. Curiosity-driven research, that is unfettered exploration without any particular application in mind, is crucially important. No one knows what knowledge will be important in the future. Serendipity is a rich and bountiful consequence of curiosity. Universities overall, however, should be more market *facing*; more appreciative of the needs and demands of those who turn knowledge into the wealth that pays for the

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<sup>8</sup> Dodgson, M., Hughes, A., Foster, J and Metcalfe, S (2011) "Systems thinking, market failure, and the development of innovation policy: The case of Australia", *Research Policy*, 40, 9:1145-1156.

things we enjoy in life: health, education, security and the arts. Such engagement better justifies the role of universities to government, delivers benefits to business, and encourages academics to do interesting research.

The historical anomaly of the 'detached' model of university/industry engagement is in its death throes, but its demise and the birth of the 'fully engaged' model are not being particularly well nursed in Australia. Poor absorptive capacity in Australian business, and vulnerabilities to corporate decisions made with no national regard, limit the country's capacity to increase the flow of knowledge within it. Universities have not yet developed the strategies and incentives to develop and sustain meaningful long-term partnerships with business in such challenging conditions. Government policies are process rather than outcome oriented and show scant appreciation of the degrees of freedom universities need, the nature of the intermediary institutions necessary, and the diversity of performance measurements required, in order to stimulate productive university/industry engagement.

Perhaps another challenge arises. Those universities at the forefront of the new engagement, such as MIT and Imperial College London, are developing ever more ambitious and adventurous strategies.<sup>9</sup> The benefits of closer collaboration between universities and businesses have seen Australian universities, somewhat belatedly, commonly more rhetorically than in reality, and often misguidedly, add 'engagement' to their missions of research and education. This implies that connectivity is a separate activity rather than one implicit and engrained in the university's efforts to generate and share knowledge. It may well be that the institutionalisation of this 'third leg' may be counterproductive in the long-term. A fully engaged university in the future, market facing and fully attuned to co-developing in partnership, will have no need for differentiating the ways it connects with business. Engagement will be a part of the everyday operations of universities and the behaviour of academics and fully embedded in the ways they research and teach.

#### *Questions for consideration*

1. The extent to which universities have the strategic capacity to comprehensively and sustainably engage with businesses.
2. The appetite in businesses to work with universities in areas of their distinctive competitive advantage.
3. The most appropriate government policies for building engagement by encouraging absorptive capacity in industry, supporting intermediary institutions, and giving universities strategic freedom to operate.

Note: many of the ideas in this paper are being developed for a forthcoming book co-authored with Alan Hughes (Cambridge University, ex Director Centre for Business Research); David Gann (Vice-President, Innovation and Development, Imperial College London); and Kevin Morgan (Dean of Engagement, Cardiff University). Thanks are extended to Alan Hughes for his comments on this paper.

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<sup>9</sup> See, for example, MIT's Innovation Initiative <http://innovation.mit.edu>, and Imperial College's new research and translation campus <http://imperial.ac.uk/about/leadership-and-strategy/imperial-west/>



