

Please find attached our submission to your current inquiry. Please note in part we focus on the following statement in your press release:

‘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.’

In doing so we provide some material from an earlier ARC linkage grant application (which was not successful) and also several papers by a Danish visiting professor on the measurement of performance and success of research parks. We refer you to two relevant articles on these matters. (Nielsen, C., Sort, J. (2015) ‘Value exchange in university–industry collaborations’, *International Journal of Technology Transfer and Commercialisation*, Vol. 12, No. 4, p p. 193-215. Nielsen, C., Cappelen, K. (2014) ‘Exploring the mechanisms of knowledge transfer in university-industry collaborations : a study of companies, students and researchers’, *Higher Education Quarterly*, Vol. 68, No. 4, pp. 375-393).

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The Government's National Innovation and Science Agenda identifies innovation as at the heart of a strong economy. The Government's policy highlights how innovation is not just about new ideas, products and business models; innovation is also about creating a culture where we embrace risk, move quickly to back good ideas and learn from mistakes.

We make two key points:

1. **Accounting for innovation** is needed for an innovation culture to develop in Australian organisations. This accounting is not simply about measurement but incorporates the soft skills of management, culture, performance management and control, finance processes, accounting and assurance.
2. Australia has world-class universities and research organisations but is ranked last in the OECD in research–business collaboration. Strengthening **the collaboration between universities and industry** will be crucial to Australia's economic success in the coming decades.

### **1. Accounting for innovation**

Accounting for innovation is about identifying the factors that drive successful and unsuccessful innovations. This will provide a basis from which innovation performance can be measured, success rates increased, and high performance achieved. Measurement of innovation and effective governance are critical to balancing strategy, resources and risk, ultimately identifying conditions in which innovation can thrive. The accounting issues of management control and performance measurement are key to implementing innovation within organisations, with governance managing the risk inherent to innovation.

Assurance of the management of knowledge and intellectual capital aspects of innovation makes clear the success or otherwise of an innovation, by bringing together the governance, strategy, measurement and resources and weighing up their benefits against costs. Strategy, resources and measurement all must be subject to assurance if they are to genuinely create innovation of benefit both to the organisation and the nation. This is significant to managers seeking to

implement innovation within organisations and also to policy makers seeking to support innovation through funding, tax concessions, etc.

Adopting an accounting for innovation will allow for:

1. identification of how innovation is developed within organisations from the perspective of senior executives;
2. investigation of how organisations strategically respond to changes in their operating environment;
3. identification of the characteristics and effectiveness of the mix of governance and management controls used in different circumstances by analysing both successful and unsuccessful innovations;
4. identification of how accounting for innovation, including assurance, contributes to innovation through strategy and resource allocation;
5. Australian policy makers to engage in the innovation debate with strategies to develop better economic, financial and educational policies to enable a culture of innovation within Australian organisations.

There is substantial anecdotal and empirical evidence that suggests that, despite Australia's highly educated population, well-developed economic infrastructure, and creative and practical culture, innovation is not achieved (see, for example, World Bank, 2007). Indeed, it can be argued that Australia has a risk avoidance culture based on a paucity of investment in riskier and more innovative venture capital projects, creating a barrier to innovation nationally (World Bank, 2007; ADI, 2011, p. 127).

An understanding of the distinction between different forms of innovation and their alignment to different levels of organisational uncertainty provides a basis from which innovation performance can be measured, success rates increased, and high performance achieved in Australian organisations. Underpinning this is understanding the links between strategy, management control, risk and governance. Management controls are important factors in successful innovation because, if designed effectively, they drive organisational behaviour towards achieving desired outcomes (Merchant & van der Stede, 2007). Aligned with management controls is the accounting for

innovation, or how it is measured. Measuring innovation and relating the measurements to the desired outcomes allows managers to make strategic decisions about innovation processes giving the desired innovation more chance of success.

A particular problem of studies into innovation is identifying the gap between managers' perceptions of innovation and awareness of the criteria required for successful innovation (Cooper & Kleinschmidt, 1993, p. 74). This gap is due to the difficulty in establishing a relationship between measures of innovation and firm performance (Tidd, 2001, p. 169). Innovative processes are mostly unpredictable and the measurement of their inputs and outputs are challenging and dependent on the business environment in which the company operates. Thus, innovation can be classified using a model built on two key dimensions (see Tidd, 2001, p. 169):

- Level of certainty: the awareness about the organisational situation and the external environment in which the company operates; and
- Level of pro-activity: level of response to a critical issue.

We have previously conducted a pilot study (Dumay, 2011) on innovation in partnership with the accounting firm KPMG, aimed at understanding the enabling conditions for innovation within organisations. It found that managers tend to apply the same strategic approach to innovation regardless of the type of innovation, suggesting a disconnect between strategy and innovative processes. The study also found that some of the success factors that have been popularly considered for successful innovation were not required or even detrimental to innovative processes, for example, an 'innovative organisational culture' or a CEO that drives innovation.

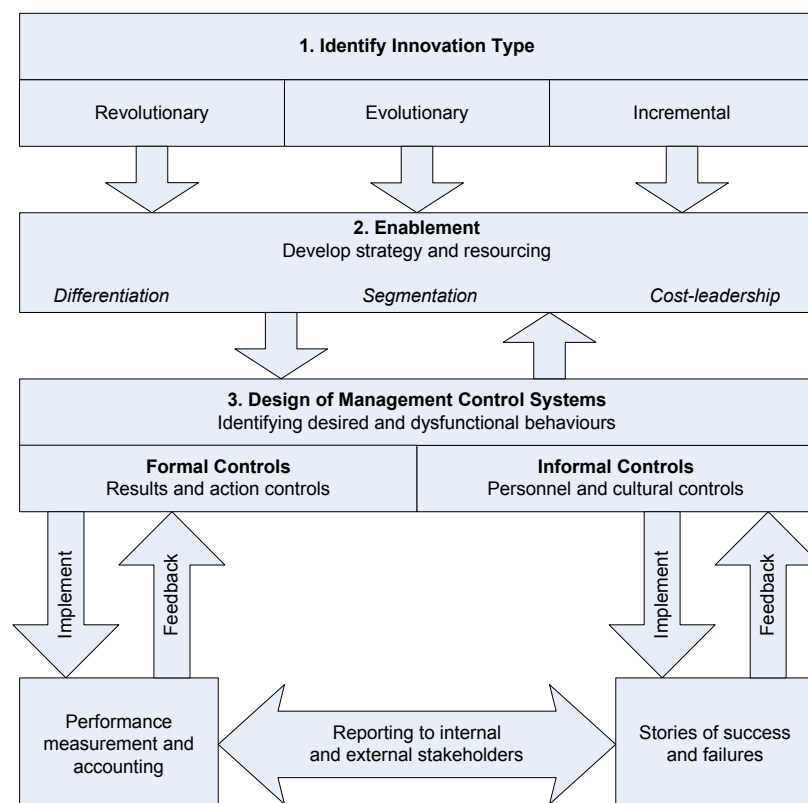
These findings support the need for an accounting perspective, in which strategy, resources and governance are linked and evidence is provided of their importance to innovation, that is the factors for successful innovation are identified and measured and provide insights into management and public policy.

The pilot study examined not only the conditions required for successful innovation, but also the conditions under which innovation was unsuccessful. It also observed that organisations failed to define the role of accounting in mediating between innovation and wider profit concerns so success and/or failure can be determined. The difficulty arises because accounting records cost associated

with innovation, for example, R&D costs, at the transaction date while income from the investment, may take a considerable time to transform, especially with revolutionary innovations. A further difficulty arises because investments into innovative capacity are in intellectual capital such as people and knowledge which cannot be represented in traditional financial accounts.

Thus, the problems of assessing innovation performance and how it links to value creation parallel the debates on non-financial reporting. We argue that by investigating how the intangible and financial aspects of innovations are accounted for, managed and reported managers will be able to make better links between the intangibles aspects of innovation and wider profit concerns and overcome the divide that exists between those directly involved in innovative processes and the accounting for the impact of specific innovations and wider profit concerns.

**Figure 1: Innovation operationalised**



## **2. University–Industry Collaborations**

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. Some important questions are:

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

To answer some of these questions we studied a broad range of University–Industry Collaborations (UIC) 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 UICs studied included researcher-company collaborations, student-company collaborations and collaboration including both students, researchers and companies.

The findings of this study provide some useful lessons for Australia in fostering better relationships between universities and industry. We found the following.

- Agreeing on ambitions, expectations and objectives at an early stage are important for achieving a value transfer that was equally valuable to all parties involved in the collaboration. Researchers had problems in understanding the value of the UIC as seen from the industry partner perspective, in turn causing them to miscalculate the incentives of the industry partners in the UICs. The respondents indicate 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 UICs, but this generally requires a better communication between the partners involved.
- During the stages of process and termination that project management affected value creation at all the different life-cycle stages of a collaboration. The data revealed the need to distinguish between project success and project management success in UICs and generally we 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 a vital mechanism for knowledge sharing.
- It is important that the involved parties view each other as equals and creating a better understanding of roles and competences 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 of including students into on-going research projects.

The synthesis of this research has led to two frameworks for understanding, analysing and measuring the success and performance of UICs (Nielsen and Sort, 2015; Neilsen, forthcoming) . These are very useful to policy makers seeking to foster university–industry collaboration.

## REFERENCES

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