

Public University Model for Entrepreneurship – a Contextual Study

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Abstract

The nature of public universities is changing rapidly driven largely by the decrease in government funding across teaching and research sectors. This has forced a strategic a rethink of university value generation and its translation into revenue. The aim of this paper is to provide an analysis of current government innovation policy and university capabilities to support the translation of innovation, and in so doing explore the possibilities of a Quadruple Helix innovation approach to building new models for education. The paper begins by examining the significant role innovation plays in developing economic wealth, and a discussion of the triple helix framework that identifies the complex collaborative relationships between universities, government and industry. The development of a Quadruple Helix Innovation Model, which places the user at the centre of the relationship, highlights the importance of developing entrepreneurial capabilities in the translation of innovation. We argue that building appropriate entrepreneurial capabilities formed via vertical and horizontal curricular offerings by key stakeholders will be critical to new business models outcomes. Universities are encouraged to embrace the entrepreneurial driven curricular to provide the innovation, execution and disruption necessary to improve university revenue growth.

Keywords: University, Entrepreneur, Innovation, Capability, Business Model, Quadruple Helix, Empirical

Introduction

Innovation and entrepreneurial activities are recognised engines of long-term economic growth (Wang, Peng, & Gu, 2011). Innovation results in continuous improvement and sustained competitiveness against on-going imitation by competitors, introduction of newer products/services and obsolescence (Rubera & Kirca, 2012). However, the capitalization of benefits and externalities associated with innovation is not limited to the investing company but also society at large, e.g. commercializing novel pharmaceutical drugs result in career opportunities, better collaboration on new knowledge and opportunity for leverage into newer areas (PISG, 2008). Entrepreneurial activities may result in a substitution effect where older firms with less potential are replaced by newer and more successful firms (2007).

The recent Australian Government's National Innovation and Science Agenda (Innovation Agenda, DoPMC, 2015) actively seeks to capitalize upon the nation's innovation and entrepreneurship from public universities, as well as cultivate future

Australian innovators through a revision of the junior and middle school's education curriculum. To enable this agenda, the literature postulates the existence of a collaborative relationship between universities/research-institutes, industry, government and civil society, known as the quadruple helix (QH) framework. The QH framework has been used to articulate knowledge sharing, direct research activity, provide a lens to understand the complementary/synergistic nature between different stakeholders, and drive higher economic growth rates (Maclean, MacIntosh, & Seidl, 2015). Research application of the quadruple helix framework can assist stakeholders in focusing the innovation process more effectively to trigger and deploy creative capabilities faster and with greater effect (e.g. to respond to external or internal opportunities for new ideas, processes or products).

To reconnoiter this agenda our research paper seeks to answer the following questions:

RQ1: What entrepreneurial linkage capability currently exists within public universities in Australia?

RQ2: How are these entrepreneurial linkages being developed?

Literature

The translation and commercialization of university research are widely acknowledged by both policy-makers and scholars as being an important driver of innovation, economic growth, employment, and solutions for global challenges (e.g. European Commission, 2014). The resource-based Quadruple Helix (QH) literature provides us with a lens and a language to explain how these processes occur.

Quadruple Helix (QH) Literature

The triple helix model is a meta-model, that advocates for regions of translation which could enable couplings between the active systems of Government, University and Industry (Helms & Heilesen, 2011). At a strategic level it assumes a top-down approach based on the contributions of experts from each of the systems. Building on Etzkowitz et al. (2007), Arnkil et al. (2010) added "the user" as the actor at the centre of the helix, giving rise to a set of innovation models that have four interacting components and thus a quadruplet. In contrast to the top-down triple helix meta-models, the QH models recognize that non-expert citizens acting as users or consumers actively participate in the co-production of new knowledge and new products. As yet, there is no universally accepted definition of the QH concept. Figure 1 shows a simplified form of the QH model, where all four "systemic actors" are broadly defined, e.g. user involvement in development. While relationships exist between each "actor", e.g. administrative, cultural, and economic, users can also be viewed in terms of a particular human need.

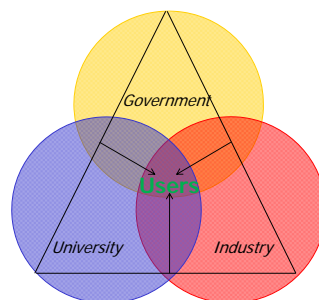


Figure 1 - A Simple Quadruple Helix Model of Innovation (adapted from Arnkil, 2010)

Building on the work of Arnkil et al. (2010), we postulate a variant of the QH model combining roles, relationships and dependencies between government, business and educational institutions that is constantly undergoing changes in structure, content and function (see Figure 2).

The purpose of this variant is to reflect the operationalization of the Innovation Agenda (DoPMC, 2015) from a knowledge institution (university) point of view. In this QH structure, universities would be developing services (e.g. courses and learning objects), supporting user involvement in the development of products, collecting information about users, and supporting the dissemination and sharing of products. Government would support research, development, networking, knowledge dissemination as well as be the end user of resultant technologies. Industry would support research and development activities, make use of all available know-how in implementing commercial solutions, and collect information on user needs. In both industry-centred and government centred models, users would contribute experiences, generating ideas, and be involved in the development and implementation of innovations (entrepreneurship).

Of course, the traditional roles of government (e.g. regulation), and industry seeking profit (e.g. via disruptive advantage), are still taking place and are part of the relational dynamic. However, due to the changes in the global economy, these roles are constantly undergoing changes. For example, the primary objective of the Innovation Agenda (DoPMC, 2015) is to enable a societal innovation ecosystem within which all “actors” have a means to interactively improve the growth, value and leverage of “final-users”. The purpose of the agenda is to establish frameworks for interaction, and then let actors work towards solutions. However, entrepreneurial-actors within the Australian ecosystem are concerned with consequences of risk taking (bankruptcy) and lack of a sizable consumer market. To minimise these risks entrepreneurial-actors choose to commercialize or relocate operations to the United States or Europe, resulting in a cycle of bounded capability. To address this, the Australian government has pledged to expand its role from a patron to a consumer of research. In this way, the innovation policy platform moves from a tool for developing the agenda to a systemic process for final-user implementation/consumption.

Australia’s public university sector has changed dramatically over the last three decades. The sector has experienced a decrease in real public funding across teaching and research sectors, while being allowed to compensate by increasing student numbers and fees (Norton & Cakitaki, 2016, p.44). With this uncapped student funding coming to end, universities are strategically repositioning their value generation model and considering revenue from other value streams. A critical component of this repositioning will be innovative teaching and research programs that encompass entrepreneurship.

To enable this repositioning, there must exist a collaborative relationship between universities (and research institutions), industry, government and civil society - known as the quadruple helix (QH) framework. The QH has been used to articulate knowledge sharing, direct research, and provide a lens to understand the complementary/synergistic nature between different stakeholders in driving higher economic growth rates (Maclean et al., 2015). The application of the quadruple helix framework assists in focusing the

innovation process to respond to external/internal opportunities (e.g. new ideas), by utilizing appropriate innovation techniques, to trigger and deploy creative capabilities faster and with greater effect.

The European experience in developing entrepreneurial universities has highlighted different approaches to co-ordinating and integrating entrepreneurial activities across institutions (OECD/EU, 2017, p.50-51). However there has been limited guidance as to what these entrepreneurial linkage capabilities look like, and how to develop them. Our QH Innovation Model for an entrepreneurial university (Figure 2), places the user/value at the centre, and highlights the importance of linked education, research and entrepreneurship capabilities in innovation transmission mechanisms (OECD areas: 3,4 &5).

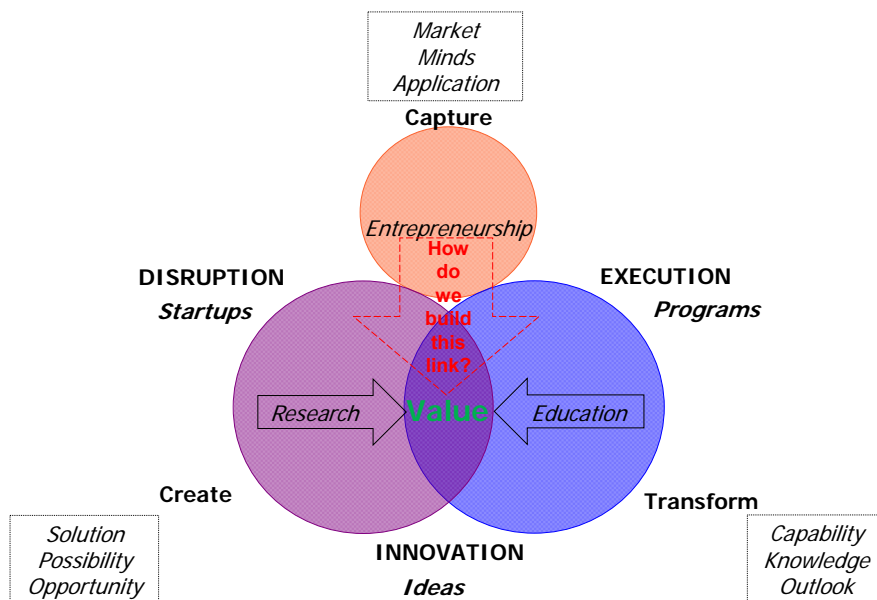


Figure 2 - Quadruple Helix Value Model – Entrepreneurship Missing from Australian Public Universities

To address this problem, our paper proposes the following questions:

RQ1: What entrepreneurial linkage capability currently exists within public universities in Australia?

RQ2: How are these entrepreneurial linkages being developed?

Design

Our research questions seek to provide an insight into the strategic repositioning of public universities within a QH framework of innovation. The availability of data for these purposes is always problematic due to the complexity of obtaining primary quantitative information from public universities. A single-case design was thus deemed appropriate for this research (Yin, 2009). The single case was a large Australian public university, as an entire organisation. It should be noted that when data was collected, the case was embedded in a General Research Division and a faculty campus, forming two ‘embedded units of analysis’ (Figure 3 - bottom left corner).

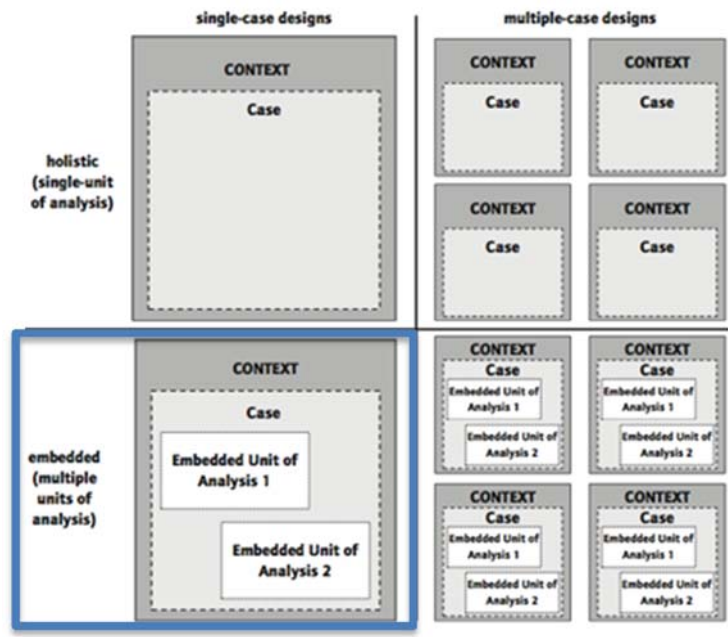


Figure 3 - Qualitative Research Design - Case Studies (Yin, 2009)

The use of a qualitative longitudinal approach to the case study method in the current study offers potential gains for developing an increasingly holistic understanding of change in the education sector. Semi-structured discussions and attendance at meetings were the primary methods utilised to collect data. This enabled the collection of a large amount of contextual, observation and data secondary data during a three year repositioning period.

Results & Discussion

Our results show that three years ago (Time-3) there was limited entrepreneurial activity at the university (Figure 4). The entrepreneurial curricular was sporadically located in units across faculties, and there was a disconnect between research/education and entrepreneurial/industry output.

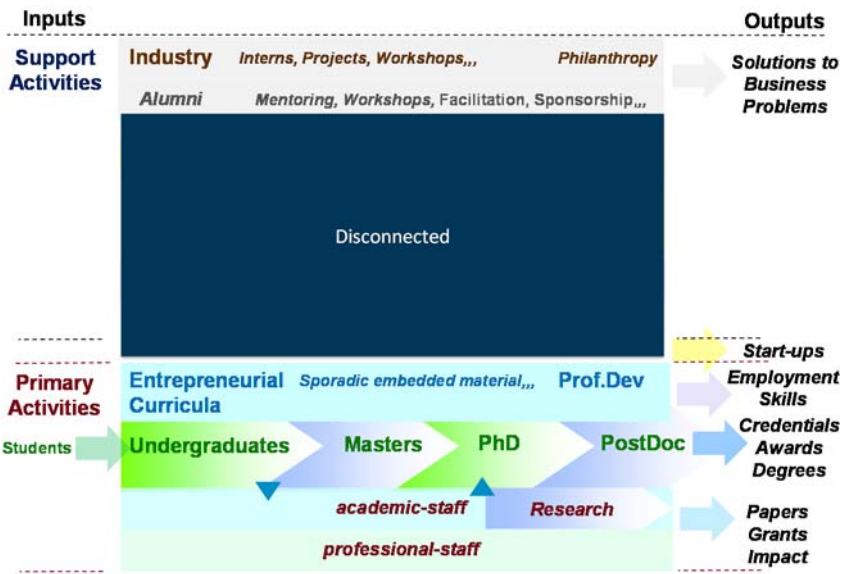


Figure 4 - University Entrepreneurship Model – Time-3

Two years ago (Time-2) the university established an entrepreneurship centre to enable focused access and visibility inside and outside (Figure 5). The new model built relationships with the surrounding entrepreneurship ecosystem, and began to leverage education and professional capabilities inside the university. Students were actively targeted to participate in entrepreneurship education activities, and units were developed to increase the offering/participation rates of entrepreneurship. To enhance participation, targeted communication efforts were also established, inviting entrepreneurs as guest speakers, and the launch of pitching competitions with prizes formulated as new venture funding (e.g. see OECD/EU, 2017, p.49-50).

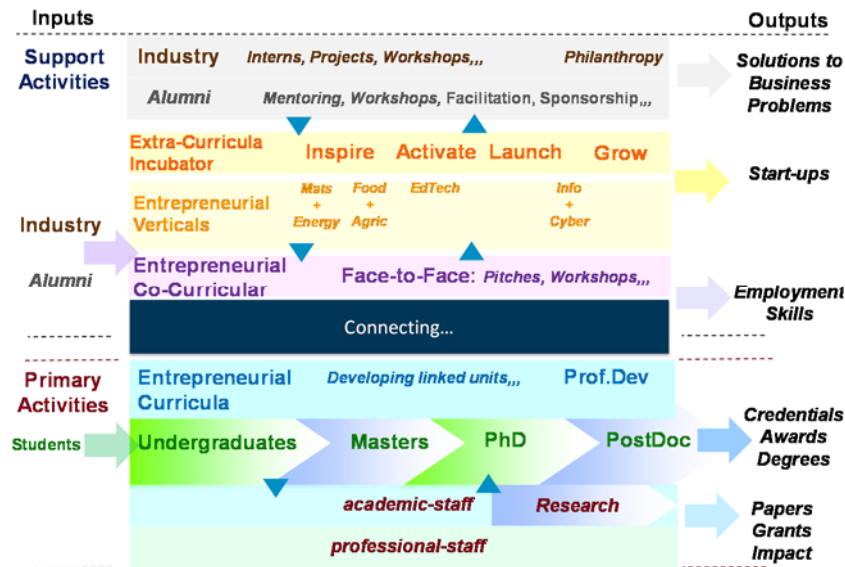


Figure 5 - University Entrepreneurship Model – Time-2

Over the past year (Time-1, Figure 6) we have seen the launch of multiple entrepreneurship units, linked to undergraduate and postgraduate programs. These have been purposefully linked to incubator co-curricular and extra-curricular programs focused on the practice/art of entrepreneurship. The establishment of central enterprise unit has also fostered the establishment and launch of several entrepreneurial verticals linked to the expertise of particular research expertise and focus.

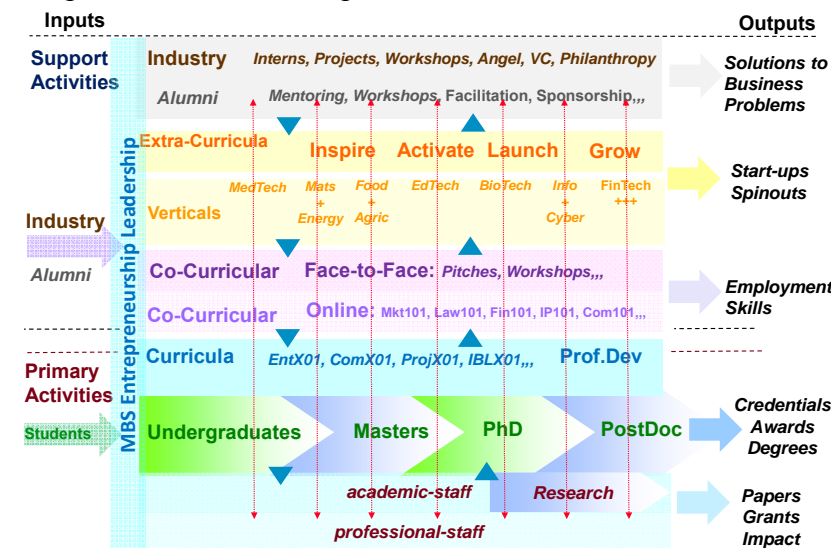


Figure 6 - University Entrepreneurship Model – Time-1

The challenge in the current year is to grow these verticals so they breach down into the depths of the university's teaching and research capability.

Conclusions

In order to develop entrepreneurship capabilities required from the Innovation Agenda, (Australian) universities must redirect resource allocation to more comprehensive entrepreneurship activities (RQ1). From a teaching and learning perspective, these entrepreneurship activities must be user/student/value-centred rather than teacher-centred. Moreover, the nature of learning should move away from traditional classroom teaching to short courses and experiential approaches that expose users to a rigorous but relevant curriculum.

Entrepreneurial linkage development is at an early stage (RQ2), but there is early evidence of constructive relevance to the QH proposed in Figure 2. The vertical and horizontal approaches develop both knowledge and skills in innovative entrepreneurship, along with opportunities to work closely with alumni, industry representatives and entrepreneurs in residence. Such motivation and resourcing thus be reoriented has the potential to effectively deliver value in a QH framework via intentional translation.

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