

# REMODELLING UNIVERSITY GOVERNANCE IN PUBLIC UNIVERSITIES TO RESPOND TO THE DUAL CHALLENGES OF ACADEMIC RESEARCH AND COMMERCIALIZATION

Anil K Narayan\*, Karin Olesen\*\*, Suresh Ramachandra\*\*\*

## Abstract

Using an in-depth case study, this paper examines how the governance of a public university responds to the dual challenges of academic research and commercialization. Our findings indicate that the stakeholder model of institutional governance for academic research strongly underpinned by new public management ideologies conflicted with the research commercialization mission dominated by a profit seeking objective. To be governed responsibly, commercialization requires some degree of corporatization, and the corporate governance model seems to offer many advantages to public universities. The study demonstrated that the best way forward for public universities may be to adopt 'dual' stakeholder and corporate governance models and utilize complementary and collaborative governance strategies to meet the challenges of academic research development and commercialization.

**Keywords:** Academic Research, Commercialization, Corporate Governance, Public University, Stakeholder Model

\*Corresponding author. AUT University, Private Bag 92006, Auckland 1142, New Zealand

Tel: +64 9 9219999

Fax: + 64 9 9219940

Email: [anil.narayan@aut.ac.nz](mailto:anil.narayan@aut.ac.nz)

\*\*AUT University, Private Bag 92006, Auckland 1142, New Zealand

\*\*\*AUT University, Private Bag 92006, Auckland 1142, New Zealand

## 1 Introduction

In recent times, many public universities across the globe have formally adopted the research commercialization mission to help drive their national innovation system and stimulate economic growth (Rosenberg and Nelson, 1994, Mowery et al., 2001, Marginson and Considine, 2000, Etzkowitz et al., 2000). The transition from academic research to commercialization can be "both painful and difficult" as it involves transforming an organization accustomed to doing academic research to simultaneously develop a capacity for doing something entirely different in the form of commercialization of technologies and ideas (Ambos et al., 2008, p.1425). Prior research indicates that universities vary enormously in the extent to which they have been successful in commercializing their academic research (Ambos et al., 2008). This is mainly because research commercialization often involves a wide range of university-industry interactions, at different organization levels and different activities (Rossi, 2010). It includes collaborative research, contract research, consulting, licensing and the creation of start-up firms to undertake the commercial exploitation of university

research (D'Este and Patel, 2007, Di Gregorio and Shane, 2003, Dorf and Worthington, 1987, Etzkowitz et al., 2000). While the changing nature of the university and industry relationship from the commercialization of research has resulted in the emergence of new organizational forms (Rossi, 2010), the identification of clear-cut models of governance of university research commercialization is not straightforward (Geuna and Muscio, 2009).

Effective university organization and governance is critical for technology transfer and commercialization success (Debackere and Veugelers, 2005). The dual focus on managing the conflicting demands of academic research rigor and commercialization has added a new dimension to the research management practices of many public universities across the globe (March, 1991, Andriopoulos and Lewis, 2009, Kayrooz et al., 2007). Prior research has focused on the success and failures of commercialization (Markman et al., 2005, Phan and Siegel, 2006, Powers and McDougall, 2005) but very few researchers have addressed how university organizational and governance mechanisms respond to the dual challenges of resolving the conflicting demands of academic research and commercialization (Ambos et al., 2008). In fact, most prior research is on

universities in the USA, and little is known about how the technology transfer and commercialization activities are organised in universities outside the USA (Clarysse et al., 2005). Very few researchers have paid sufficient attention to the different forms of governance for fostering academic research and commercialization relationships (Oxley, 1997, Rossi, 2010).

The aim of this paper is to examine how public university governance responds to the dual challenges of academic research and commercialization. We do this through an in-depth case study of a large New Zealand public university engaged in the commercialization of research for over a number of years. Our research interest is not only on how universities reconcile the conflicting tensions between academic research and commercialization, but more importantly on how they ensure that academic research complements commercialization. The remainder of the paper is structured as follows. Section two provides a brief overview of the literature on university governance. Section three provides a discussion of the new public management and neo-institutional theoretical perspectives to help inform the study. Section four briefly outlines the research method and section five presents the case study findings. Section six provides a discussion of the findings and the final section is devoted to some concluding remarks.

## 2 Literature Review

In recent years, research has highlighted the importance of corporate governance and in particular the role of boards in developing the strategic direction and implementing research and technology commercialization (Markman et al., 2008, Debackere and Veugelers, 2005). Debackere and Veugelers (2005) suggest that from an organizational viewpoint, governance structures have a major impact on university-industry knowledge transfer. Much literature exists on the emergence of new organizational forms and functions that promote academic research and help manage the university-industry knowledge transfer and commercialization of research (Markman et al., 2008). Among the many different organizational forms that exist are the dedicated technology transfer offices, university research centres and institutes, research liaison offices, technology licensing offices, research joint ventures, university spin-off companies, science-parks and technological consultancies (Cohen et al., 2002, Dahlstrand, 2008, Debackere and Veugelers, 2005, Dorf and Worthington, 1987, Wright et al., 2004, Lockett et al., 2003, Phan and Siegel, 2006, Markman et al., 2008). The extremely diverse array of academic research organizational entities is commonly referred to in literature as 'organized research units' (Geiger, 1990, Hays, 1991). Their nature, number and characteristics vary considerably across universities

(Stahler and Tash, 1994, Boardman and Corley, 2008) and these variations now pose major challenges to university governance.

Governance within universities "embraces leadership, management and strategy" and concerns itself with "the determination of values inside universities, their systems of decision-making and resource allocation, their mission and purposes, the patterns of authority and hierarchy, and the relationship of universities" especially with the government, business and community (Marginson and Considine, 2000, pp. 7-8). According to Fielden (2007), the term "governance" simply refers to all those structures, processes and activities of planning, directing and monitoring the progress of institutions and its people working towards the achievement of its policies and objectives. It is a means for realising institutional goals and enables institutions to respond to the demands of the political environment (Salter and Tapper, 2002). Governance of public universities is significantly influenced by government policy, with particular emphasis on efficiency and effectiveness measures (Trakman, 2008). The basic elements of effective university governance also include accountability, autonomy and academic freedom (Trakman, 2008, Edwards, 2003). Effective governance of research and commercialization requires a reconsideration of the composition of boards, the roles of individual members, and their skill sets as it relate to research and technology activities (Markman et al., 2008).

The literature identifies different university governance models each serving different purposes in different contexts. Fielden (2007) identified four institutional governance models ranging from control to autonomy as follows: (1) state control; (2) semi-autonomous; (3) semi-independent; and (4) independent. The state control and semi-autonomous model can be an agency of the government, a state-owned corporation or a statutory body. The semi-independent and independent model can be a statutory body, charity or non-profit corporation with no government participation and control linked to national strategies and related only to public funding. Fielden (2007) argues that the international trend seems to favour the increasing autonomy and corporatisation of public institutions by making them independent, self-governing organizations. Trakman (2008) identifies five primary models of governance in universities: (1) faculty; (2) corporate; (3) trustee governance; (4) stakeholder; and (5) amalgam models of governance. The faculty model assumes that universities should be principally governed by academic staff with expansive governance powers granted to university senates or by significant faculty representation. This is the most traditional and 'attacked' form of university governance. The corporate governance model increasingly prevalent in many universities is based on a business-case model emphasising the fiscal and managerial responsibility

of those charged with governance of the university. Trustee governance is specifically governance through a 'trust' relationship between a trustee board that acts in trust for, and on behalf of, trust beneficiaries. The stakeholder model conceives governance as broadly representative with the stakeholders' mandate extending beyond the efficient management and fiscal responsibility of corporate governance boards. Here, the governance is vested in multiple stakeholders including, among others, students, academic staff, alumni, corporate partners, government and the public at large. The amalgam model of university governance includes some combination of faculty, corporate, trustee and stakeholder governance. The norm in universities seems to be 'shared governance' which is a balance between the corporate model for modern business conditions and the consensual model implied by faculty dominance (Shattock, 2002). The literature on university governance argues that there seems to be no one-size-fits-all model of governance that exemplifies 'good' practice and whichever governance model is chosen, it needs to be responsive to the governance context in which they are applied, but not being subjugated by that context (Trakman, 2008, Edwards, 2003)

University governance has been the subject of considerable debate in New Zealand for over a decade now (Edwards, 2003). The Education Act 1989 provides the general scheme of governance relating to the duties of governing councils, which include the requirement to ensure that public institutions attain the highest standards of excellence in education, training, and research, and that systems are established for the co-ordination of, and accountability for, activities within institutions to ensure the responsible use of public resources. In a move to strengthen university governance, the Education Standards Act was enacted in 2001. This legislation increased the powers for the government to take positive and supportive action in the case of serious governance failure of a public tertiary institution. The legislation also gave government powers to introduce a monitoring and intervention regime if institutions were assessed as having a high level of risk that threatened the operation and long-term viability of an institution. The legislative changes introduced many accepted features of good governance in tertiary institutions. These include strategic planning and specifying institutional objectives and strategies; establishment of audit committees; development of improved control structures and risk management frameworks; and identification of stakeholders and performance information (Edwards, 2003). A number of deficiencies were also identified by Locke (2001) and Edwards (2003). Some of the major governance concerns relate to the lack of clarity of respective roles and responsibilities of members; under-performance; lack of consistency in decisions relating to institutional vision, mission and values; unclear relationship with government; tension between

autonomy and accountability; and low strategic leadership capacity of members (Edwards, 2003, Locke, 2001). The tension between institutional autonomy and accountability to government has remained at the core of many policy and political debates in New Zealand (Eichbaum, 2006).

Knowledge transfer and research commercialization has become important governance issues for universities across the globe. Yet, there remains insufficient theoretical and empirical evidence on governance of the commercialization of research and technology transfer across institution types and board capabilities and functions (Markman et al., 2008). As most universities in countries outside the USA are defined in law as 'not for profit' public organizations, commercialization poses major contradictions in terms of their institutional identity and mission (Shore, 2010). According to Markman et al. (2008), commercialization is sometimes interpreted differently by for-profit and non-profit organizations and remains an under-researched area (Markman et al., 2008). In New Zealand, research commercialization has created a new tertiary education environment that is complex, large-scale and multi-faceted thus requiring a highly-sophisticated and demanding level of governance (Edwards, 2003). As all universities in New Zealand are public universities, they require a fresh focus on lifting their governance performance with a view to improving their strategic positioning, engaging with a wider range of stakeholders and aligning with the government's tertiary education priorities to deal with the commercial challenges of the twenty-first century (Edwards, 2003). The next section provides a brief discussion of the theoretical perspectives to help further inform the governance issues related to the transformation of public universities.

### 3 Theoretical Perspectives

New public management (NPM) theoretical perspectives provide an understanding of the governance challenges of academic research and commercialization within public universities. NPM can be best understood as an ideological configuration of neo-liberal strategies that emphasise autonomy, market freedom and competition in achieving the overall economic well being of the society (Olssen, 2002). By advocating the use of markets and market driven changes, the NPM perspectives transformed the governance and organization of the public sector across many nations (Servage, 2009). It promoted technologies such as comprehensive corporate planning, budget disciplines, performance based measurement systems and the devolution of management control as useful mechanisms of public sector governance (Deem, 2001, Aucoin, 1990, Boston et al., 1991, Hood, 1995, Olssen and Peters, 2005). According to Hood (1995), the NPM introduced the entrepreneurial spirit to innovate the

public sector organization and governance. The governance paradigm that evolved from the NPM perspectives emphasised less bureaucracy, devolved management, public-private partnerships, the development of quasi-markets and the inclusion of a range of different stakeholders (Ferlie and Andresani, 2006, Olssen, 2002). These ideologies were aimed at fostering competition, both internal and external to the organization, in the interests of driving maximum efficiency and effectiveness in the overall provision of public services (Deem, 2001). The purposeful application of the private sector management practices into the public sector also introduced elements of the corporate governance model into the public sector.

The logic of public sector governance derived from NPM practices not only defined new forms of administrative orthodoxy about how public services were run and regulated (Deem and Brehony, 2005), it also embodied several key principles of efficiency, effectiveness, accountability, transparency and autonomy (Olssen and Peters, 2005, Edwards, 2003, Ferlie and Andresani, 2006, Hood, 1991). Public sector governance now places greater emphasis on accountability as a clear assurance that the organization is operating as efficiently and effectively as possible (Hood, 1995, Olssen, 2002). Accountability in public sector governance requires established missions and goals and the widespread use of performance indicators and performance management systems, as well as enhanced forms of monitoring and reporting systems to hold the organization and its workers accountable for maximum efficiency (Deem, 2001). These key principles and arrangements have become institutionalised and now form the core of good governance in transforming public sector organizations in global contexts.

Neo-institutionalism also provides interesting perspectives on organization and governance. According to Scott (2001), institutions are composed of cultural-cognitive, normative, and regulative elements that provide stability and meaning to organizations. The regulative element provides a constraining, regularising, and influencing behaviour on organizations through a system of rules and governance mechanisms. Compliance is achieved through monitoring, enforcement, and sanctioning activities of the nation and regulatory structures (Scott, 2003). For public universities, regulatory compliance is mainly effected by coercion, rewards, fear, and punishment. Legitimacy in organization and governance is achieved through compliance to existing rules and legislation (Scott, 2003).

Neo-institutionalism also emphasises that organizations display varying degrees of strategic choice by aligning and adapting to changes (Oliver, 1991). Some organizations become ambidextrous and manage trade-offs between conflicting demands by putting in place "dual structures", so that certain business units focus on alignment, while others focus

on adaptation (Gibson and Birkinshaw, 2004). Organizational ambidexterity commonly refers to an organization's ability to be aligned and efficient in responding to market demands, while simultaneously being adaptive to changes in the environment (Gibson and Birkinshaw, 2004). Some organizations may employ loose coupling and decoupling mechanisms to manage change (Scott, 2003). Loose coupling has been described by Meyer and Rowan (1977, p. 357) as enabling organizations to "maintain standardized, legitimating, formal structures while their activities vary in response to practical considerations". Organizations that are loosely coupled have the flexibility in responding to institutional pressures, as well as allowing for physical or logical separateness in dealing with technical work activity (Orton and Weick, 1990). Decoupling refers to organizations attempts to partially detach its activities as a means of protecting the organizations interests, especially in terms of maintaining autonomy and maximizing efficiency (Covaleski and Dirsmith, 1988b, Covaleski and Dirsmith, 1988a). Under conditions of conflicting institutional demands, organizations may decouple their formal structure and governance practices from their operational structure and governance practices to ease tensions or project a legitimate image (Meyer and Rowan, 1977, Scott, 2003). How these theoretical perspectives influenced the university organizational form and governance of research and commercialization is further analysed in the paper.

#### 4 Research Method

Our research is based on a case study of a large public university in New Zealand actively engaged in research and commercialization. The case was purposefully selected to provide information rich sources of data (Patton, 1990, Chua, 1995). A total of ten face-to-face semi-structured interviews were conducted with research institute directors, researchers, senior academics, the CEO of the commercial company, commercialization managers, finance managers, and research policy and planning managers. It was important to ensure that perceptions of organizational and governance mechanisms were gathered from a variety of individuals who were positioned differently within the research and commercialization activities of the university. The interviews were conducted during the period 2009/2010. Each interview lasted about sixty minutes on average and was recorded, transcribed and coded. To improve the willingness to participate in the interviews, the interviewees' anonymity was assured. For this reason, the university name in the study has been disguised and referred to as Premier University.

The information gained from the interviews was supplemented with additional information gathered from secondary sources, mainly commercial company and university websites as well as official publications, strategic plans and university reports.

This also enabled data triangulation (Eisenhardt, 1989, Yin, 2003). Data collected was analysed using NVivo 8 software. Data analysis involved identification of common patterns and themes (Miles & Huberman, 1994; Patton, 1990) which provided a basis for further interpretation. The findings from the data analysis are presented next.

## 5 Case Findings

Premier University is a large research-led public university established over 120 years ago with a primary focus on the intellectual development, research productivity, and commercialization of research results. It has approximately 40,000 students enrolled in a wide range of undergraduate and postgraduate programmes. The university has a strong international focus with affiliation to various international research-led universities. Research and teaching are undertaken by over 2,000 academic staff supported by a further 2,400 general staff. The university encourages all academic staff to engage in research, both pure and applied, across established and emerging disciplines to advance the frontiers of knowledge and innovation.

*Institutional Governance.* Premier University is governed by a University Council, which comprises elected staff, students, council appointees and ministerial appointees. The Vice-Chancellor, Deputy Vice-Chancellor and two senior executives are also members of the governing council. The University Council is chaired by the Chancellor who is appointed by council members. In total, the University Council had seventeen members with four appointments made by the Minister of Education. Under the Education Act 1989, the University Council has the following responsibilities: to appoint a Chief Executive (Vice-Chancellor); carry out long-term planning for the institution; adopt the strategic and investment plan; ensure that the university is managed in accordance with these plans; and determine the policies of the university in relation to the carrying out of the objectives of these plans. In carrying out its functions, the governing University Council is guided by the statutory characteristics of universities, which are defined in the Education Act 1989. The Education Act 1989 gives statutory protection to the institutional autonomy and the academic freedom of its staff and students. The Act also binds the University Council, the Vice-Chancellor, ministers and agencies of the crown to act in all respects so as to preserve and enhance institutional autonomy and academic freedom. On academic matters, the governing council consults the university senate which includes all the professors, and representatives of sub-professorial staff and students. The senate takes advice from a number of other sub-committees on academic and research matters. The governing council holds senior management (particularly the Vice Chancellor/Chief

Executive Officer) accountable for achieving institutional goals.

*Governance and Organization of Academic Research.* The governance of academic research is largely based on NPM practices that impose elaborate strategic plans with established missions and goals for research. As a publicly funded university, institutional governance places greater emphasis on accountability for research as a clear assurance that the university is operating as efficiently and effectively as possible in fulfilling its academic research mission and role in society. Premier prepares a five year strategic plan and a three year investment plan that forms the basis of its institute-wide research planning. The university must align its strategic goals and objectives and investment plan funding requirements to the government's five-year tertiary education strategy on research. Public funding can only be made available once Premier's strategic and investment plans are approved by both the University Council and the government. There is widespread use of performance indicators and performance management systems, as well as enhanced forms of monitoring and reporting systems to hold the university and its staff accountable for research performance against these plans. Premier's Strategic Plan (2007-12) states that its research strategy is: "... to undertake high quality research ... and ... to build and consolidate areas of research excellence in the wide range of disciplines expected in an international, multidisciplinary university; to attract, encourage and retain the best possible researchers; and to provide the appropriate infrastructure and other resources to support research."

To fulfil its academic research mission, institutional governance gives priority to the development of appropriate organizational configurations for research. In line with this strategy, Premier established two large-scale and eight smaller, multi-disciplinary research institutes, thirty-five school based research centres and four centres of research excellence. The school based research centres primarily provide the research infrastructure and support essential in fostering the development of academic research capability. These research centres enable the development of a broad but focussed research programme and help create a sufficient critical mass of quality researchers. The university's four government-funded centres of research excellence supports world-class research considered of national and international importance. These centres of research excellence combine extensive national and international networks and complementary skills from other research institutes and centres, partner universities, industry, and government research agencies to promote cutting edge research. The institute structure enables the university to increase its research capacity and capability to undertake novel and leading-edge fundamental research. According to a Deputy Director of a large

research institute: "I think the critical thing with the institute is that there is enough critical mass and I think momentum with that we can support people who have different interest and capabilities in totally different areas".

Premier also has a large central research office to provide the overall management of the research affairs of the university. The university research office facilitates the development and implementation of the university's research strategy, manages the accountability expectations of the university's research community, provides assistance in research grant management and encourages and supports excellence in research. The various forms of research organizational configurations of the university provides professional researchers with autonomy, enables pooling of the required resources to build research capacity and capability, and promotes a strong research culture. Research centres and institutes helps attract much needed funding, as funding success has become a prerequisite to the creation and survival of these structures. Interviews with Directors' of research centres and institutes revealed that funding success is important as it provides them with legitimacy, raises their research profile and capability; helps forge international collaborations and attract top research talent. It enables development of staff and student research capabilities and helps achieve a critical mass of research excellence necessary for commercialization.

*Governance of Research Commercialization.* NPM with an emphasis on autonomy and market freedom introduced an entrepreneurial spirit that encouraged Premier to become one of the earliest universities in New Zealand to engage in the commercialization of research. Premier's commercialization mission dominated by a profit seeking objective transformed the governance and organization of its research management practices. Its governance paradigm of commercialization emphasises greater autonomy, less bureaucracy, devolved management, flexibility and a culture of trust to produce successful commercial outcomes. Premier set up a commercial company as an autonomous organization with a separate governing board to ensure that it was flexible and responsive to the commercial environment rather than be constrained by a centrally managed bureaucratic system. According to the Chief Executive of the commercialization company, "...a separate business unit acts as a commercial entity, and de-politicises decisions". It helps establish formal links between the university and industry and international partners. Commercialization has a much longer timeframe, usually decades between discovery and exploitation, and there is no certainty of outcomes that may lead to financial success. Interviews revealed that the corporate governance structure of the commercial company helps manage all risks associated with research commercialization activities. Since the

allocation of public research funding under NPM is increasingly characterised by research priority areas and performance-based funding, the governance under NPM places a high value on measurable performance outcomes and is largely audit driven. Interviewees were concerned that performance measures for research commercialization activities were difficult to specify, quantify, and measure because of the uncertainty of the long term nature of the projects. The NPM requirements were at odds with academic researchers and scientists who preferred greater autonomy, flexibility, and a culture of trust to produce successful research outcomes. Hence, a separate governance model established under the commercial company structure enables Premier to decouple from the bureaucratic NPM requirements to set specific commercialization objectives and measures of performance under conditions of uncertainty.

The governing board of the commercial company is modelled on a corporate governance structure with five independent and five non-independent directors all appointed by the University Council. The five non-independent directors are the university's Vice-Chancellor, Deputy Vice-chancellor (Research) and Deans from three of the largest contributing faculties who all bring expert opinions to the commercial company's governing board. The five independent directors bring to the governing board expertise in their fields which are as wide as marketing and law, accountancy and finance, and research in medical therapeutics. The governing board is directly responsible for setting the mission, strategies, policies and systems of the commercial company. Its composition and functioning ensures that it commits to and addresses the commercialization needs of a range of different stakeholders, both inside and outside the university. It sets the values and standards within the organization through decisions on strategy, markets, public-private partnerships, investment returns and incentives. The governance process sets policy guidelines that assist management to promote and protect new inventions, run multi-million dollar funds to develop bright ideas arising from research through to the point where they are ready for investment, and develop new infrastructure by sponsoring new centres of research at the institution. The Chief Executive emphasised that the commercial company and its corporate governance structure provides a strong business focus to help develop commercial outcomes, negotiate contracts, manage risk, make investments, find markets, and bring value back to the university; something not possible under the bureaucratic university structure.

The governance of the commercial company is also charged with the responsibility for assisting the development of the university's research capacity and capability by increasing its research base and resources. The corporate governance strategy has been effective in funding the establishment of some

research institutes as a joint initiative between faculties and administered through the commercial company. This loose coupling between the research institutes and the commercial company enables an early identification of commercialization opportunities from academic research. The commercial company also sponsors many research projects undertaken by Premier's two large scale research institutes established as autonomous multidisciplinary units independent of the faculty structure. These research institutes promote and support multi-disciplinary and collaborative research with external research organizations and industry sectors. The commercial company management structure has separate technology transfer teams that manage research projects with very strong commercialization potential. Effective governance mechanisms ensure regular and ongoing meaningful engagement with all stakeholders to ensure that commercialization expectations were met. The governing board monitors progress towards the achievement of desired outcomes through bi-monthly reporting by the Chief Executive. Governance systems are also in place to ensure that the commercial company has sufficient autonomy to make financial decisions, employ its own staff and maintain an independent financial and human resource system that provides greater flexibility and efficiency of operations.

Despite the independence of the commercial company, the University Council still exercises control by retaining some strategic and financial powers. It requires the commercial company's strategic plan goals to be aligned with the goals of the university. According to one Director of the commercial company, "...we keep the two goals moving in the same direction as accountability in the first place is to the parent company". The University Council also sets specific budget targets of financial performance and return of 'profits' to the institution. Each year, the commercial company returns a healthy dividend to the parent university. The commercial company through its governing board has a high level of reporting to the University Council. It reports monthly to the Finance Committee of the University Council. It also has an annual reporting against its strategic plan objectives and financial performance back to the University Council. The annual performance results of the commercial company are consolidated into the annual report of Premier University. The commercial company does not produce its own annual report. However, it holds its annual general meeting when it reports to its stakeholders once a year.

## 6 Discussion

Premier is a public funded institution and is subject to government controls imposed by the regulatory requirements of the Education Act 1989. Legislation

imposed a stakeholder model of governance vesting institutional governance responsibilities in a wide array of stakeholders including, among others, students, academic staff, professional and business people, government representatives and the public at large. Modelling governance through engagement with government and wider stakeholder representatives ensures that the university's research activities will be reflective of government priorities and community expectations. In this manner, the stakeholder model of institutional governance safeguards Premier's public accountability requirements. The regulatory and funding pressure coerces the governing University Council to align with the government's tertiary education strategy and priorities for research.

While the stakeholder model of governance strongly underpinned by NPM ideologies promoted accountability to a range of different stakeholders, it was not flexible and responsive to the commercial environment. Premier's commercialization mission is dominated by a profit seeking objective and returning a profit from academic research did not comply with the stakeholder model of institutional governance representing many different, and competing, interest groups. Premier mitigated this with the establishment of an ambidextrous organization in the form of a commercial company with a corporate governance structure. This ambidextrous organizational form and the corporate governance model helped manage the dual challenges of academic research and commercialization. The corporate governance model enabled Premier to be aligned and efficient in responding to research commercialization demands while the institutional governance based on the stakeholder model enabled Premier to simultaneously respond to the academic research priorities of different stakeholders. The corporate governance model also enabled Premier to decouple research commercialization activities from the bureaucratic NPM requirements to establish objectives and measures of performance that caused tensions with academic researchers and scientists who preferred greater autonomy, flexibility, and a culture of trust to produce successful research commercialization outcomes.

An interesting feature of the 'dual' institutional governance and corporate governance models adopted by Premier is that they are collaborative and complementary in responding to the dual challenges of academic research development and commercialization. The corporate governance model used a strategy of developing academic research capability by funding the establishment of some research institutes as a joint initiative with faculties pursuing academic research excellence. This loose coupling between the research institutes and the commercial company helped enable an early identification of commercialization opportunities from academic research. On the other hand, the institutional



stakeholder governance model gave sufficient autonomy to the corporate governance structure of the commercial company to make financial decisions, employ its own staff and maintain an independent financial and human resource system so that it had greater flexibility and efficiency of operations. A common criticism in literature is that producing a high-quality academic research obviously differs from returning a profit from research. The duality of governance models adopted by Premier has demonstrated that these differences can be effectively reconciled.

## 7 Conclusion

Stakeholder representation has been a distinctive feature of the governance of public universities, but in recent years, research commercialization has added a new dimension to the governance of these universities. Commercialization offers universities the opportunity to generate funding from academic research outcomes, but the process is complex, risky, and requires a strong business focus. Public universities need to “corporatize” to some degree to be governed responsibly.

The study has demonstrated that public universities can govern responsibly by remodelling their governance structures. By adopting an ambidextrous corporate governance model coupled with a stakeholder governance model, public universities may be able to respond appropriately to the dual challenges of achieving academic research excellence and commercialization. However, in modelling change, it is equally important to identify the issues that are associated with particular governance models to ensure that they complement each other rather than conflict. Good governance models must serve different purposes in different contexts. The superior effectiveness of one model does not make it the ‘best’ governance model as its functional value may vary in terms of how it is applied in a particular context.

The results of this study suggest that governing bodies of public universities should develop good governance practices that helps them understand and take advantage of research commercialization opportunities. The study provides some useful guidance to support public universities to design frameworks for responsive and accountable governance to meet the dual challenges of academic research development and commercialization.

## References

1. Ambos, T. C., Makela, K., Birkinshaw, J., and D'Este, P. (2008), “When does university research get commercialized? Creating ambidexterity in research institutions”, *Journal of Management Studies*, Vol. 45 Issue 8, pp. 1424-1447.
2. Andriopoulos, C., and Lewis, M. W. (2009), “Exploitation-exploration tensions and organizational

- ambidexterity: Managing paradoxes of innovation”, *Organization Science*, Vol. 20 No. 4, pp. 696-717.
3. Aucoin, P. (1990), “Administrative reform in public management: Paradigms, principles, paradoxes and pendulums”, *Governance*, Vol. 3, pp. 115-137.
4. Boardman, P., and Corley, E. (2008), “University research centres and the composition of research collaborations”, *Research Policy*, Vol. 37 Issue 5, pp. 900-913.
5. Boston, J., Martin, J., Pallot, J., and Walsh, P. (1991), *Reshaping the State - New Zealand's Bureaucratic Revolution*: Oxford University Press.
6. Chua, W. F. (1995), “Experts, networks and inscriptions in the fabrication of accounting images: A story of the representation of three public hospitals”, *Accounting, Organizations and Society*, Vol. 20 Issue 2-3, pp. 111-145.
7. Clarysse, B., Wright, M., Lockett, A., Van de Velde, E., and Vohora, A. (2005), “Spinning out new ventures: A typology of incubation strategies from European research institutions”, *Journal of Business Venturing*, Vol. 20 Issue 2, pp. 183-216.
8. Cohen, W. M., Nelson, R. R., and Walsh, J. P. (2002), “Links and impacts: the influence of public research on industrial R&D”, *Management Science*, Vol. 48 Issue 1, pp. 1-23.
9. Covaleski, M. A., and Dirsmith, M. W. (1988a), “An institutional perspective on the rise, social transformation, and fall of a university budget category”, *Administrative Science Quarterly*, Vol. 33 Issue 4, pp. 562-587.
10. Covaleski, M. A., and Dirsmith, M. W. (1988b), “The use of budgetary symbols in the political arena: An historically informed field study”, *Accounting, Organizations and Society*, Vol. 13 Issue 1, pp.1-24.
11. D'Este, P., and Patel, P. (2007), “University-industry linkages in the UK: what are the factors underlying the variety of interactions with industry?”, *Research Policy*, Vol. 36 Issue 9, pp. 1295-1313.
12. Dahlstrand, A. L. (2008), *University Knowledge Transfer and the Role of Academic Spin-offs*, Paris: OECD.
13. Debackere, K., and Veugelers, R. (2005), “The role of academic technology transfer organizations in improving industry science links”, *Research Policy*, Vol. 34 Issue 3, pp. 321-342.
14. Deem, R. (2001), “Globalisation, new managerialism, academic capitalism and entrepreneurialism in universities: is the local dimension still important?”, *Comparative Education*, Vol. 37 No.1, pp. 7-20.
15. Deem, R., and Brehony, K. J. (2005), “Management as ideology: the case of 'new managerialism' in higher education”, *Oxford Review of Education*, Vol. 31 No. 2, pp. 217-235.
16. Di Gregorio, D., and Shane, S. (2003), “Why do some universities generate more start-ups than others?”, *Research Policy*, Vol. 32 Issue 2, pp. 209-227.
17. Dorf, R. C., and Worthington, K. K. F. (1987), “Models for commercialization of technology from universities and research laboratories”, *Journal of Technology Transfer*, Vol.12 Issue 1, pp.1-8.
18. Edwards, M. (2003), *Review of New Zealand Tertiary Education Institution Governance*, Wellington, Ministry of Education.
19. Eichbaum, C. (2006), “Tertiary education governance in New Zealand”, *IAU-Horizons*, Vol. 11.4 - 12.1(February), pp.8.



20. Eisenhardt, K. (1989), "Building theories from case study research", *The Academy of Management Review*, Vol. 14 Issue 4, pp. 532-550.
21. Etzkowitz, H., Webster, A., Gebhardt, C., and Terra, B. R. C. (2000), "The future of the university and the university of the future: evolution of ivory tower to entrepreneurial paradigm", *Research Policy*, Vol. 29 Issue 2, pp. 313-330.
22. Ferlie, E., and Andresani, G. (2006), "Roundtable: Understanding current developments in public-sector management- New Public Management, governance or other theoretical perspectives?", *Public Management Review*, Vol. 8(3), pp.389-394.
23. Fielden, J. (2007), *Global Trends in University Governance: Education Working Paper Series Number 9*, Washington, DC, The World Bank.
24. Geiger, R. L. (1990), "Organized research units: Their role in the development of university research", *The Journal of Higher Education*, Vol. 61 No. 1, pp. 1-19.
25. Geuna, A., and Muscio, A. (2009), "The governance of university knowledge transfer: A critical review of the literature", *Minerva*, Vol. 47 No. 1, pp.93-114.
26. Gibson, C. B., and Birkinshaw, J. (2004), "The antecedents, consequences, and mediating role of organizational ambidexterity", *Academy of Management Journal*, Vol. 47 Issue 2, pp. 209-226.
27. Hays, S. W. (1991), "From adhocery to order: Organizational design for higher education research and services", *Research Management Review*, Vol. 5 No. 1, pp. 1-17.
28. Hood, C. (1991), "A public management for all seasons", *Public Administration*, Vol. 69 Issue 1, pp. 3-19.
29. Hood, C. (1995), "The 'New Public Management' in the 1980s: variations on a theme", *Accounting, Organizations and Society*, Vol. 20 Issue 2-3, pp.93-109.
30. Kayrooz, C., Akerlind, G., and Tight, M. (Eds.). (2007), *Autonomy in social science research: The view from UK and Australian universities*, London, Elsevier.
31. Locke, S. (2001), "Governance in New Zealand higher education institutions: Concepts and practice", *Journal of Higher Education Policy and Management*, Vol. 23 No 1, pp. 33-48.
32. Lockett, A., Wright, M., and Franklin, S. (2003), "Technology transfer and universities' spin-out strategies", *Small Business Economics*, Vol. 20 Issue 2, pp.185-200.
33. March, J. G. (1991), "Exploration and exploitation in organizational learning", *Organization Science*, Vol. 2 No. 1, pp.71-87.
34. Marginson, S., and Considine, M. (2000), *The Enterprise University: power, governance and re-invention in Australia*, Cambridge, Cambridge University Press.
35. Markman, G. D., Gianiodis, P. T., Phan, P. H., and Balkin, D. B. (2005), "Innovation speed: transferring university technology to market", *Research Policy*, Vol. 34 Issue 1, pp. 1-18.
36. Markman, G. D., Siegel, D. S., and Wright, M. (2008), "Research and technology commercialization", *Journal of Management Studies*, Vol. 45 Issue 8, pp. 1402-1423.
37. Meyer, J. W., and Rowan, B. (1977), "Institutional organizations: Formal structures as myth and ceremony", *American Journal of Sociology*, Vol. 83 No. 2, pp. 340-363.
38. Mowery, D. C., Nelson, R., Sampat, B., and Ziedonis, A. (2001), "The growth of patenting and licensing by U.S universities: an assessment of the effects of the Bayh-Dole Act of 1980", *Research Policy*, Vol. 30 Issue 1, pp. 99-119.
39. Oliver, C. (1991), "Strategic responses to institutional processes", *Academy of Management Review*, Vol. 16 Issue 1, pp. 145-179.
40. Olssen, M. (2002), "The restructuring of tertiary education in New Zealand: Governmentality, neo-liberalism, democracy", *McGill Journal of Education*, Vol. 37(1), pp. 57-87.
41. Olssen, M., and Peters, M. A. (2005), "Neoliberalism, higher education and the knowledge economy: from the free market to knowledge capitalism", *Journal of Education Policy*, Vol. 20 No. 3, pp. 313-345.
42. Orton, J. D., and Weick, K. E. (1990), "Loosely coupled systems: a reconceptualisation", *Academy of Management Review*, Vol. 15 Issue 2, pp. 203-223.
43. Oxley, J. E. (1997), "Appropriability hazards and governance in strategic alliances: a transaction cost approach", *The Journal of Law, Economics and Organization*, Vol. 387, p. 409.
44. Patton, M. Q. (1990), *Qualitative Evaluation and Research Methods* (2 ed.), Newbury Park, Sage Publications.
45. Phan, P. H., and Siegel, D. S. (2006), "The effectiveness of university technology transfer", *Foundations and Trends in Entrepreneurship*, 2.2, pp. 77-144.
46. Powers, J. B., & McDougall, P. P. (2005), "University start-up formation and technology licensing with firms that go public: a resource-based view of academic entrepreneurship", *Journal of Business Venturing*, Vol. 20 Issue 3, pp. 291-311.
47. Rosenberg, N., and Nelson, R. (1994), "American universities and technical advance in industry", *Research Policy*, Vol. 23 Issue 3, pp. 323-348.
48. Rossi, F. (2010), "The governance of university-industry knowledge transfer", *European Journal of Innovation Management*, Vol. 13 No. 2, pp. 155-171.
49. Salter, B., and Tapper, T. (2002), "The external pressures on the internal governance of universities", *Higher Education Quarterly*, Vol. 56 No. 3, pp. 245-256.
50. Scott, W. R. (2001), *Institutions and Organizations* (2nd ed.), Thousand Oaks, CA, Sage
51. Scott, W. R. (2003), *Organizations: Rational, Natural, and Open Systems* ( 5th International ed.), New Jersey, Pearson Education Inc. Prentice Hall.
52. Servage, L. (2009), "The scholarship of teaching and learning and the neo-liberalization of higher education: Constructing the entrepreneurial learner", *Canadian Journal of Higher Education*, Vol. 39 No. 2, pp. 25-44.
53. Shattock, M. (2002), "Re-balancing modern concepts of university governance", *Higher Education Quarterly*, Vol. 56 No. 3, pp. 235-244.
54. Shore, C. (2010), "How commercialisation is redefining the mission and meaning of the university: a reply to Steve Hoffman", *Social Anthropology*, Vol. 19(4), pp. 495-499.
55. Stahler, G. J., and Tash, W. R. (1994), "Centres and institutes in the research university: Issues, problems and prospects", *The Journal of Higher Education*, Vol. 65 No. 5, pp. 540-554.

56. Trakman, L. (2008), "Modelling university governance", *Higher Education Quarterly*, Vol. 62 Nos. 1/2, pp. 63-83.
57. Wright, M., Vohora, A., and Lockett, A. (2004), "The formation of high-tech university spin-outs: the role of joint ventures and venture capital investors", *Journal of Technology Transfer*, Vol. 29 (2-4), pp. 287-310.
58. Yin, R. K. (2003), *Case Study Research: Design and Methods*, (Third ed.), Thousand Oaks, CA, Sage Publications, Inc.