

MANAGING ACCOUNTABILITY EXPECTATIONS IN AN UNCERTAIN CONTEXT: A NEW INSTITUTIONAL PERSPECTIVE

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ABSTRACT

The realities of many public sector organisations today is characterised by uncertainty, complexity, interdependence, diversity, and instability. Under such conditions, managing accountability expectations utilising New Public Management (NPM) principles based on conditions of certainty about expected results have created tensions that remain largely unexplained in current literature. Using two exploratory case studies of universities engaged in commercialisation of research, this study makes a useful contribution to this area by proposing that under conditions of uncertainty and complexity, institutionalized practices flourish as public institutions strive for greater legitimacy within their larger institutional environments to enhance reputation and compete for resources. The findings of the study reveal that within an uncertain context of research commercialisation, accountability has a stronger normative perspective focused on building research capability and capacity. Within this context, universities employ varying forms of structural configurations and communicative strategies as key accountability mechanisms to seek legitimacy, gain valuable resources and enhance their reputation. The structures serve as both bridging mechanisms to facilitate collaboration of research as well as provide a buffer for researchers to exercise professional autonomy. Under conditions of uncertainty, positive communicative narratives are rationally constructed to influence powerful stakeholders, enhance reputation, and provide legitimacy for resources. While NPM accountability focus is on measurement of results, in an uncertain context, legitimization of purpose is considered more important.

Key words: Accountability, Commercialisation, Legitimacy, New Public Management, Uncertain Context.

1. INTRODUCTION

For over past two decades, New Public Management¹ (NPM) reform initiatives have been used to improve public sector accountability and performance but empirical studies on the effects of introducing NPM instruments show mixed results (Budding, 2004). Accountability under NPM initiatives has been largely operationalised in terms of publicly defining the organisation's mission, setting goals and objectives consistent with the mission, establishing strategies to accomplish goals, and measuring and reporting on outcomes. These requirements have placed an excessive focus on the bureaucratic process of formal compliance and control and is largely results-oriented based on efficiency and effectiveness measures (Zapico-Goni, 2007). The NPM accountability relies on standardised accountability measures to satisfy the desires of particular stakeholders, often sources of funding (Oakes & Young, 2008). It assumes a stable environment with conditions of certainty about expected results. However, the realities of many public sector organisations today is characterised by uncertainty, complexity, interdependence, diversity, and instability and under such conditions, NPM accountability seems weak (Zapico-Goni, 2007). There is an urgent need to bring to attention concrete examples of accountability in action to usefully complement the more theoretical and abstract discussion that have appeared in literature (Young & Oakes, 2009). Attention to specific context will also enable rethinking new approaches to accountability in the public sector.

The aim of this paper is to contribute to a more comprehensive understanding of public sector accountability by exploring how accountability expectations are managed in the uncertain context of university research commercialisation. Two key accountability mechanisms used to manage accountability expectations will be studied: structural configurations and communicative strategies; and the factors that influence the existence of these mechanisms. The study is based on two exploratory case studies of New Zealand Universities engaged in commercialisation of research. Universities undertaking commercialisation of research operate in a complex and uncertain environment. Within this context of uncertainty, policy logic and outcomes remain unclear and uncertain (Zapico-Goni, 2007) and institutional environments flourish under these conditions (Fogarty, Zucca, Meonske, & Kirch, 1997, p. 178). Therefore, the study utilises new institutional theory (NIS) to explain the motivations behind the use of structural and communicative strategies as key accountability mechanisms. The study does not pretend to offer profound solutions but it highlights issues that will be of interest to policy makers, regulators, funding agencies, university employees, and universities themselves as they examine appropriate approaches to recognise and manage accountability expectations of a wide group of stakeholders to enhance research commercialisation.

The remainder of the paper is organised as follows. The next section briefly reviews the relevant literature that helps understand the complexities and the uncertain context of university research commercialisation. This is then followed by an identification of the theoretical framework for the case studies. The subsequent section outlines the research method. There is then a section that analyses the case and provides a description of the findings. The final two sections provide a discussion of the case analysis and draw some conclusions.

¹ New Public Management (NPM) refers to the conception of public accountability characterised by the adoption of private sector management techniques and competitive attitudes with a greater emphasis on measurable outputs (Hood, 1995)

2. LITERATURE REVIEW

Pressures from the institutional environment have put universities at the centre stage of creation and diffusion of new knowledge considered essential in driving the national innovation and economic development plans of many nations' (e.g OECD, 2008; Rasmussen, Moen, & Gulbrandsen, 2006). These developments provide a number of important accountability challenges to universities. Not only do universities have to cope with a growing accountability agenda, accountability has become a major concern in most parts of the world (Salmi, 2009). A broad range of stakeholders are increasingly asking universities to justify the use of public resources and more thoroughly account for their research results (Dahlstrand, 2008; Fielen, 2007; Gauthier, 2004). Research commercialisation is broadly defined as the process of transforming research outcomes including intellectual property, ideas, and knowledge into marketable products, processes, or services thereby contributing to improved economic and social outcomes (Laperche, 2002) . It is a fairly recent phenomenon in many universities across the globe (Ambos, Makela, Birkinshaw, & D'Este, 2008; Colyvas & Powell, 2006) and is fraught with difficulties (Laperche, 2002). Universities are expected to show tangible returns for the public research funding they receive but the process of transferring fresh and new ideas from basic research to industry and to create commercial products is not so evident (Wessner, 2003, p. 51). There remains considerable uncertainty amongst universities about how to leverage the intellectual abilities of their research staff (Laperche, 2002; Pilbeam, 2006). The uncertainty arises from the complex, multi-faceted, and time consuming nature of the commercialisation process including the inherent risk involved in transforming academic research into commercial products and services. Despite receiving widespread attention in literature in recent years (Agrawal, 2001; Djokovic & Souitaris, 2008), the 'who, where, what, how, and why' of university research and technology commercialization are still evolving' (Markman, Siegel, & Wright, 2008, p. 1411). Thus, research aimed at explaining these evolving concepts are extremely important and deserves greater attention.

Previous research has focussed on organisational practices affecting productivity of technology transfer office (e.g. Siegel, Waldman, & Link, 2003), initiatives to promote commercialization of university knowledge (e.g. Rasmussen et al., 2006) and policies towards the commercialisation of university intellectual property (e.g. Goldfarb & Henrekson, 2003). Di Gregorio & Shane (2003) examined the differences among universities in commercialisation of technologies. Jain, George, & Maltarich (2009) examined role identity modification of university scientists involved in commercialization activity and Chapple, Lockett, Siegel, & Wright (2005) reviewed performance of technology transfer offices. Most studies have concentrated on university start up formation and technology licensing (e.g. Powers & McDougall, 2005), university patenting activities (e.g. Nicola, Rosa, & Maurizio, 2006), technology transfer and universities' spin-out (e.g. Lockett, Wright, & Franklin, 2003), university-industry linkages (e.g. D'Este & Patel, 2007) and effectiveness of university technology transfer (e.g. Phan & Siegel, 2006). Most studies are on technology transfer relating to spin-offs, licensing and patents that are ex post the decision to commercialise and do not explain the processes leading up to the creation of these technologies for commercialisation (Hindle & Yencken, 2004; Vohora, Wright, & Lockett, 2004). Therefore, managing accountability expectations of academic research development on commercialization is not well understood.

The much heightened public expectations, contradictory demands and resulting tensions of commercialisation of academic research also raise important accountability challenges for universities in terms of setting clear policies and priorities, having adequate structures,

resources, and incentives to guide behaviour (Ambos et al., 2008). It is adding a new dimension to universities research management practices which is in conflict and causing tensions with NPM accountability. Research management within universities are largely dictated by a culture of managerialism and performativity originating from the NPM literature (Anderson, 2006; Codd, 2005; Coy & Pratt, 1998; Gray, Guthrie, & Parker, 2002; Lapsley & Miller, 2004; Modell, 2003, 2005; Neumann & Guthrie, 2002; Parker, Guthrie, & Gray, 1998; Willmott, 1995). As such, NPM accountability based on managerialist principles places high value on what is produced, observed, and measured. For knowledge, experience, and innovation to be valued and recognised, it needs to be reduced to some measurable performance outcomes under NPM (Codd, 2005). An excessive focus on the bureaucratic process of formal compliance, control, audit and results based measures of efficiency and effectiveness measures is at odds with research professional groupings who prefer greater autonomy, flexibility, and a culture of trust to produce successful outcomes (Codd, 2005; O'Neill, 2002). The tension between academic innovation and NPM audit driven accountability has been recognised in literature (Findlow, 2008) and is counterproductive to research commercialisation. Therefore, accountability relationships need careful management as it will shape the universities response to select and use appropriate accountability mechanisms. Under conditions of uncertainty and complexity, accountability is not simply just giving account or explaining and justifying one's actions (Bovens, 2007). One has to understand the dynamics of the accountability relationships. The key to understanding the dynamics of accountability relationships in an uncertain context lies in three key theoretical elements: the role of the institutional environment in shaping organisational response; the adoption of structural configurations; and the use of communicative strategies.

3. THEORETICAL FRAMEWORK

New institutional theory (NIS) will be used to interpret the findings of the two case studies.. NIS is a dominant theory that offers renewed interest in organisational analysis and understanding of organisation behaviour (Dillard, Rigsby, & Goodman, 2004; Lounsbury, 2007a; Mizruchi & Fein, 1999). It provides unique perspectives that have become established as key theoretical foundations of modern organisational institutionalism (Lounsbury, 2008). In the context of this study, NIS helps recognise the importance of the organisation-environment linkages and provides an understanding of how universities as organisations engaged in commercialisation of research are influenced by their institutional context. Institutional context refers to the rules, norms, and ideologies that become rationalized myths and accepted practice models of the wider society (John W Meyer & Rowan, 1983). According to NIS, these broader institutional contexts facilitate the cultural-cognitive, normative, and regulative elements of organizations that, together with associated activities and resources, fundamentally shape organizational behavior and practices. (Scott, 2001). More recent NIS places new emphasis on rationality thus broadening the scope and richness of its core concepts, assumptions and arguments. These include the adoption of a more strategic approach to rationality (Oliver, 1991), new perspectives on organizational heterogeneity and practice variation(Lounsbury, 2001), and greater emphasis on a collective or institutional notion of rationality (Lounsbury, 2007b). There is also a more intent focus on the concept of institutional entrepreneurship that offers fresh insights in understanding how new institutions arise by introducing actors and human agency roles (DiMaggio, 1988; Fligstein, 1991; Hardy & Maguire, 2008; Leblebici, Salancik, Copay, & King, 1991). By putting human agency back into institutional analysis of organizations, NIS helps “move beyond the constraining effects of institutions” (Hardy & Maguire, 2008, p. 213). NIS perspectives provide an understanding of the institutional dynamics that help shape the

organisational response, structure, and strategies. These are discussed in the following subsections.

The role of the institutional environment

Universities undertaking commercialisation of research operate in a complex and uncertain institutional environment comprising of local, national, and international stakeholders. As they seek to respond to multiple and often competing accountability demands, there is a real danger that they may suffer from “multiple accountability disorder” (Koppell, 2005) caused by a problem of “many hands”(Bovens, 2007). Therefore, managing accountability relationships is crucial as it will shape the organisations response to select and use appropriate mechanisms to transform university research into commercial outputs. Research on organisational response to accountability and performance mechanisms introduced under NPM show that conflicting pressures on the organisation lead to the adoption of a range of responses, from transformation, acquiescence, defiance, and manipulation (Brignall & Modell, 2000). But the scope for strategic action may be bounded and structured by their institutional environment. The institutional environment is characterized by rules and requirements to which individual organizations must conform in order to receive support and legitimacy (Scott & Meyer, 1991, p. 123). Successful organizations become isomorphic with these environments and conform to their beliefs and contemporary norms in order to gain legitimacy, secure resources, and receive public support and confidence (John W. Meyer & Rowan, 1977, p. 352).

Structural configurations

Universities like other public sector organizations not only operate in a complex institutional environment; they are complex institutions per se, particularly in relation to its interactions with multiple stakeholders – government, oversight and funding agencies, industry organizations, communities it serves, staff, students, etc. (Codd, 2005; Lapsley, 2008). Organisations do not choose new structures at random (Jones, 1992). Organisation studies indicate a number of factors influence this decision – size, strategy, pressures for conformity with institutionalised norms, values, beliefs, and technical lore institutionalised in society. In a study of educational organisations, Rowan (1992) found that education organisations add structures due to pressure of conformity and therefore get support and endorsement of key agencies in the institutional environment. DiMaggio & Powell (1983) found that organisations look similar because they have to conform to norms, beliefs, and rules in the institutional environment in order to achieve legitimacy, which enables them to acquire resources and improve chances of survival. They have argued that the homogenizing pressure from the state and professions lead to *coercive, normative, and mimetic isomorphism* that causes organisations to adopt similar structural characteristics. *Coercive isomorphism* results from formal and informal pressures exerted on organizations to comply with requirements of other dominant organizations upon which they are dependent. The pressure for organization change may be in the form of force, persuasion, or an invitation to join in collusion. It could also be the result of government mandate, or political and legal pressure to increase legitimacy. *Mimetic isomorphism* occurs when organizations tend to model themselves after similar organizations that they perceive to be more legitimate or successful”(DiMaggio & Powell, 1983, p. 152). Organizations may model or adopt technologies or innovations from similar successful organizations to enhance their own legitimacy. *Normative isomorphism* occurs via professionalization mainly arising through the growth of professional networks that helps to channel organization behaviors and procedures in appropriate, expected, and legitimate directions.

Organisations have been found to display varying degrees of choice, awareness, pro-activeness, influence, and self-interest in response to institutional pressures for change (Oliver, 1991). Some common methods include employing buffering and bridging mechanisms and making changes in the core technology of organisations (Scott, 2003). Buffering refers to organisations attempts to reduce external pressures by partially detaching or decoupling its activities from external contact (Oliver, 1991; Scott, 2003). Meyer and Rowan (1977) call this sagacious conformity, in which new technologies and techniques appear to be in use, but may not be acted upon. Decoupling sometimes becomes necessary as a means of maintaining faith and legitimacy of the organisation (John W. Meyer & Rowan, 1977). Recent developments in decoupling literature have broadened its scope. According to Boxenbaum & Jonsson (2008), decoupling could be a result of heterogeneous organisational fields with multiple and often contradictory pressures on the organisation or it could be a strategic response. Organisations decoupling as a strategic response may do so for proactive reasons rather than defensive reasons (Boxenbaum & Jonsson, 2008). Several studies support the notion of buffering tactics as a means of protecting the organisations interests, especially in terms of maintaining autonomy and maximising efficiency without having to depend on external intervention or open up to public scrutiny (Covaleski & Dirsmith, 1988a, 1988b). Bridging techniques include bargaining, contracting, forming joint ventures, mergers, associations, and government links to secure legitimacy and support from the institutional environment while at the same time protecting their technical environment.

Institutional entrepreneurs also play an influential role in creating and transforming organisation structures. Institutional entrepreneurs could be individuals, organisations or collectives (Hardy & Maguire, 2008). According to Hardy & Maguire, institutional entrepreneurship tends to flourish in emerging fields or fields under conditions of uncertainty, crisis, problems, tensions and contradictions. Fields are 'structured systems of social positions within which struggles or manoeuvre take place over resources, stakes and access' (Oakes, Townley, & Cooper, 1998, p. 260). Fields create a limited number of subject positions that legitimate identities from which institutional entrepreneurs can take action with respect to diverse stakeholders; and also to bridge stakeholders in ways which facilitate access to dispersed resources (Hardy, Maguire, & Lawrence, 2004). Institutional entrepreneurs dislodge existing practices, introduce new ones, and ensure that these become widely adopted in the field. They do this through the mobilisation of resources, the construction of rationales for institutional change and discursive intervention, and through forging inter-actor relations to bring about collective action (Hardy & Maguire, 2008).

Communicative mechanisms

In rendering account, there needs to be an appreciation of the communicative mechanisms within which accountability occurs (Black, 2008). Communicative mechanisms provide narratives of past events, actions, and performance that needs to be constructed to give account. Within the university sector, some of the most common communicative mechanisms include university charters and profiles, strategic plans, annual reports, research reports, newsletters, and web-site based information. According to Black (2008), the narrative constructed may have no effect on the organisation; may not be constitutive of organisational norms or practices; or it may be false in order to serve the organisations own interests to enhance the organisations legitimacy. When the narratives are rationally constructed to enhance the organisations legitimacy, communicative mechanisms simply serve as strategic devices to manipulate the perceptions of the organisations activities and performance (Black, 2008). The organisation may alter the narrative if it does not make sense to itself, or

alternatively, it may seek to decouple the activities requiring maintenance of formal legitimacy structures (John W. Meyer & Rowan, 1977). Therefore recognising the communicative dimension of accountability is important to understand the reporting behaviours of organisations.

4. RESEARCH METHOD

This paper uses an exploratory case study methodology to examine how universities manage accountability expectations in an uncertain context of research commercialisation. This approach is justified on the basis of the exploratory nature of the *how* research question posed and the desire to understand the contemporary phenomenon within a real-life context (Yin, 2003). To make the study more robust for the purpose of generating more compelling explanations, multiple case designs involving two separate cases have been chosen (Yin, 2003). Typical of most research universities, both institutions are actively involved in commercialisation of research. The first case, the Premier University (not the real name)² has probably the largest concentration of research activity in NZ and has been involved in the commercialisation of research for over twenty years. The second case, Universal University (not real name) is a fast growing NZ university that had made a commitment to the development and commercialisation of its research and intellectual property. Universal is new to commercialisation and its commercial company has been in operation for the past six years.

Both cases were purposefully selected using a mixed sampling strategy that combines elements of criterion sampling, theoretical sampling, and maximum variation sampling to provide information rich sources of data (Chua, 1995; Michael Q. Patton, 1990). Cases were chosen based on a predetermined criterion of involvement in commercialisation activities as well as their potential manifestation or representation of the theoretical constructs. The two cases also allow for maximum variation in the sample based on their diverse characteristics such as size of operation, age, nature of institution and variations in approaches to commercialisation. The benefits of the mixed sampling strategy are its flexibility, potential contribution to triangulation of perspectives, and its ability to meet multiple needs and interests (M.Q Patton, 2002). There were two primary sources of data – archival and information gathered from semi-structured interviews of individuals from within and outside the universities. The archival data comprised of university charter, profiles, strategic plans, annual reports, newsletters and website information gathered by the researcher covering a time span of six years. In New Zealand, as a result of the 2003 Performance Based Research Fund (PBRF) assessment, research has been emphasised as a measure of the universities activities as well as investing in them. During this period commercialisation of research became widely accepted as an important objective for many universities and therefore using archival documents originating from this time is justified. The study also reviews ex-ante accountability mechanisms, instead of just relying on ex-post interviews that leave room for legitimating existing facts. Answering the research question calls for an in-depth investigation of factors influencing the use of accountability mechanisms. Hence there is merit in an in-depth analysis (Ahrens & Dent, 1998).

In order to gain rich data related to commercialisation of research, the study targeted research directors, researchers, senior academics, CEO's of commercial companies and spinoff companies, commercialisation managers, finance managers, policy makers, planning

² The names of the two universities have been changed to maintain the anonymity of the interviewees.

managers and other ‘gatekeepers’ within each university. Given the exploratory nature of the research, it became important to ensure that perceptions of accountability mechanisms were gathered from a variety of individuals who were posited differently within the research and commercialisation activities of the universities. A common challenge was to choose well informed respondents who could be depended upon to provide important insights into the phenomenon (Yin, 2009). In total 15 interviews were conducted. This number is fairly representative of the sample of key informants at both institutions. The researcher was also cautious about becoming overly dependent on key informants. The interviews were conducted in an open-ended and semi-structured manner to allow interviewees to focus on particular areas of experience and expertise (Silverman, 2006). A preliminary schedule of interview questions was prepared (see Appendix A) and adapted depending on the position and experience of the interviewee. Each interview lasted for between an hour and one and a half hours, and were recorded, transcribed and coded. NVivo8 software was utilised for coding data and to help generate themes, patterns, and understanding about data (called nodes in NVivo8). As interviewees’ responses could be subject to limitations and weaknesses of reflexivity, a reasonable approach to limit some of the weaknesses was to triangulate or corroborate interview data with data gathered from other sources (Marshall & Rossman, 2006; Yin, 2009). Interview data were supplemented with information from the web sites, annual reports, and other public documents including the researcher’s in-situ observations of the work environments and attendance at presentations. The contents of the annual reports of the past five years were reviewed to determine the nature and extent of reporting on commercialisation activities. Using NVivo8 software, an analysis was carried out on the narrative sections of the annual reports to determine common themes. The semi-structures interviews helped explain the motivations behind reporting. Analysed information was then used to develop case descriptions (Yin, 2003) of each research area in terms of the stakeholders, stakeholder and university expectations, and structural and communicative strategies. These case descriptions were then compared and contrasted to identify potential commonalities and divergences. Data analysis was conducted in a way to allow the common patterns and themes to emerge in order to ensure that this adequately represents the observed cases (Miles & Huberman, 1994; Michael Q. Patton, 1990). The findings from this analysis are presented in the following sections.

5. RESULTS

The following sections describe the research commercialisation context of each case, followed by a discussion of the accountability expectations of the key stakeholders. This is then followed by a discussion of the use of structural configurations and communicative mechanisms to manage accountability expectations within each university.

CASE: PREMIER UNIVERSITY

Premier is a long established research-intensive NZ university with one of the highest concentrations of top-ranked researchers in the country. Premier’s mission is to be a research-led international university, recognised for excellence in teaching, learning, and research. As a research-led institution it seeks to make significant contributions to the intellectual development, research productivity, and development and commercialisation of its research to serve its local, national, and international communities. To fulfil its mission and role in society, Premier recognises that research commercialisation is an important function of the university that works together synergistically with teaching activities. As such, it has made a strategic commitment to actively engage in commercialisation of research alongside teaching and research. The commercialisation mission also signals Premier’s firm commitment towards the government strategy for innovation, nation development and growth. The

university is actively engaged in pioneering research across the spectrum of disciplines ranging from Arts, Business, Education, Engineering, Law, Medical and Health Sciences, and Science. It is a major provider of postgraduate education and is committed to a special role in the discovery and transmission of knowledge, and the development and commercialisation of its research and intellectual property. Research commercialisation activities are mainly concentrated in Biotechnology, Medical Science, Engineering, and Technology. Being one of the earliest universities in NZ to engage in research commercialisation, it also operates one of the largest and most successful commercialisation companies in Australasia. The university owned commercial company protects and commercialises the university's intellectual property, runs its contract research and development activity, and supports an increasing number of commercially-focused specialist research and service centres at the university. Through the commercial company, the university also engages in research and development partnerships with a wide range of local and global business organisations both in the private and public sector.

Stakeholder Expectations

Who are the stakeholders to whom accountability is due? What are their accountability expectations? Answers to some of these questions must be established before the accountability expectations could be managed.

Premier University is a very large and complex organisation recognised through the existence and importance placed on a wide range of stakeholders. It identifies its key stakeholders of research commercialisation as: external organisations, business, community, government, other educational and research institutes, industry, staff, students, and the international community. Key international stakeholders include some of the world renowned universities and its leading researchers. The international partner universities and researchers, including students are attracted to Premier because of its high international reputation and ranking in research. The international stakeholder expectations are that research has an international dimension requiring collaboration to make a significant contribution to the development of a global knowledge based society. Both Premier as well as its international partners has top ranked researchers and research facilities that enable collaboration to take place. The accountability relationship here is clearly dialectical as both universities have expectations of each other to advance their research projects, enhance intellectual development, gain peer and professional recognition, and enable university staff and student exchanges, etc.

"I think NZ is so small that we've got to look off-shore for those projects and those opportunities, and partner with international organisations." (Senior Manger P)

Premier's expectations from international collaborations with top ranked partner universities are mainly to maintain a high reputation and ranking among the world's leading research universities. This also enables Premier to secure resources and research funding not only from the partner universities but as well as the government. The annual reports of Premier show that it has been very successful in this regard. International collaboration has also helped to create opportunities for the government and businesses to build on these relationships. Similar themes continued and are summed up by Director M's comment that:

"I think the greater number of projects that get commercialised, your international reputation as a university grows, so that's the intangible that comes out of it. It is your research capability that stems from greater numbers of successful commercialisations. That then flows into attracting other top-flight academics, then that flows into, if you have got top-flight academics you are attracting top postgraduate students to do their own study and research. So, it's one after the other, you grow your reputation."

Concerning stakeholder expectations related to external organisations, Premier is engaged to advance their research needs. A range of contributions is also expected by the business community and industry in terms of research outcomes and industrial development. Some of these expectations arise from partnerships between Premier/business/industry. Discussion with senior university staff also made it fairly obvious that major corporations are looking more and more to universities as research partners as they outsource their research and development in favour of innovation using external sources of expertise.

“Large companies are effectively outsourcing research and development, in a race to secure the best expertise from universities. The university on the other hand is systematically seeking to identify opportunities for new, profitable, commercial activities.” (CEO P)

The staff and student expectations are that Premier will provide funding and support to build their research capability which could ultimately lead to commercial outcomes. For this to happen there is an expectation of an innovative and enterprising research culture to prevail with researchers given a great deal of professional autonomy to pursue their interests.

“It (commercialisation) provides a real interface for our staff and students between their research and training, and commercial outcomes, and interface with business.”(CEO P)

Government as a stakeholder has an expectation of tangible returns on investments in research and are drawn to universities as drivers of knowledge economies. It is placing increased emphasis on commercial outcomes from research.

“There is a very broad expectation that research should have an economic outcome, and there is a sense that, or some questions by business and government that there is that relationship between the money spent on national research and commercial outcomes. I think it is recognised by some in government that you need to have a good vital research activity in your country if you want to participate in the knowledge economy.” (Director P)

Managing Accountability Expectations using structural mechanisms

Premier has a very complex structural configuration mainly arising from the size and complexity of its research operations. To manage accountability expectation of its key stakeholders, Premier, in its strategic plan (2005-2012), had undertaken to develop large-scale research institutes of excellence that will provide them with an appropriate operating environment and accountabilities; invest in selected institutes to ensure that they can achieve sustainability at the required scale in the shortest time possible; encourage co-operation between research institutes and faculties, so as to maximise mutual benefit and minimise internal competition; and ensure that institutes which fail to grow and perform to the required level are closed so as to release funding for other ventures. This implies that the structure is largely dependent on funding and the emphasis on research institutes and faculties attracting external research income is a measure of the success of its operations. Some examples of successes reported in Premier’s 2007 Annual report are as follows:

“The first of these successes has been the winning of a major FRST contract (\$3.9m) The second success has been the winning of a Strategic Relocation grant (\$8.8m)”

“...the institute’s major achievements for 2007 include new major research funding, new prestigious international collaborations ... and increased public promotion of science and research outputs.”

Funding success demonstrated by these centres is not only a measure of their success but also allows Premier to assist in the development of staff and student research capability. Premier has set aside substantial staff and student research funds as well as funds to build research infrastructure and upgrade its research equipment. Many of these schemes have been made possible only because of Premier's success in obtaining research funding.

Currently Premier houses two large-scale research units and eight smaller, multi-disciplinary institutes, some of which are world renowned and focussed on pioneering research. It has more than 36 smaller research centres created to promote, support and conduct multi-disciplinary and collaborative research. Structurally, the research centres are a means to develop a broad but focussed research programme and create a sufficient critical mass for sustained quality researchers. The institute structure enables Premier to increase its capacity and capability to undertake novel and leading-edge fundamental research. Premier also houses government-funded Centres of Research Excellence (CoREs) to promote academic inquiry into areas considered of national and international importance. These CoREs combine extensive national and international networks and complementary skills from the university research institutes and centres, partner universities, industry, and government research agencies to promote cutting edge research. A major portion of government funding for research is channelled to these CoREs and renewal of funding is performance based.

Premier has a central research office to facilitate the overall management of the accountability expectations of the university community. In addition to providing a 'one-stop shop' for research administration services, it facilitates development and implementation of Premier's strategy to grow research revenues and enabling an environment across the university that encourages and supports excellence in research. Structure provides professional researchers with academic autonomy, enables pooling of the required resources to build research capacity and capability, and promotes a strong research culture.

“A vibrant research culture enables universities to attract better staff and students, and to build a culture of inquiry and academic rigour that enables them to contribute more effectively to society in a rapidly changing world.” (2007 Annual Report)

Premier has a wholly-owned commercialisation company to facilitate research of a commercial nature, manage intellectual property, and provide consulting and technology transfer. As stated in the university Strategic Plan 2005-2012, it helps to:

“Make specialised expertise for commercialisation of intellectual property easily accessible by university staff and students and not unnecessarily duplicated within the organisation”

The commercial company structure has been created so that it provides a strong business focus - identify intellectual property, seek commercial outcomes, negotiate contracts, manage risk, make investments, finds markets, and bring value back to the university; something not possible under the university structure.

“...they (the university) set us up as a separate business unit so we could act as a commercial entity, and I mentioned earlier – de-politicise decisions. I can't emphasise that enough. It is very convenient sometimes to constrain behaviour according to other prerogatives that exist in the university. Definitely, we can move faster. That's absolutely true” (CEO P)

Communicative mechanisms

Premier uses a wide range of communicative mechanisms to keep its stakeholders informed about its research and commercialisation initiatives. Premier's charter, the strategic plan, profile and investment plan are public documents that clearly lay out the intent and commitment to research and commercialisation. Its charter 2003 and strategic plans 2005-2012 both state: *The University is committed to: engaging with national and international scholars, educational and research institutions to enhance intellectual development, educational quality and research productivity and; the development and commercialisation of enterprise based on its research and creative works.* Premier's website contains extensive information on the research activities, research centres, and research institutes. The commercial company has a separate website with links to Premier's web pages. The websites provide details of the objectives, functions, membership, staff and student profiles, achievements, funding success, etc. Most of the information is largely publicity material but it does provide an extensive narrative of past events, activities, and performance. Premier also produces faculty newsletters, research news, and a whole range of publicity and promotional materials to keep in touch with its stakeholders. Since the annual report is widely regarded as the key accountability mechanism, it became the focus of this study Over the past five years Premier has consistently reported on research commercialisation, but only as brief narratives on the activities, events and revenue generated by the commercial company. As commented by Director C:

"We write a report to highlight some of the major activities we have done that year. It is difficult for any particular reader to grasp the full width of our business ...so quite often we just highlight some of the things that are engaging to the reader, most readers have got no interest in what we do..."

On decisions regarding what goes in the annual report and the purpose of reporting, Director M commented:

"Well, we decide on a theme for each year and then we extract stories out of each area that is usually seen as a cross-section of activities across the university. We produce this as a marketing document as well."

From an analysis of the annual reports it became clear that Premier's reporting is focussed on its efforts aimed at building a research culture; developing research capability; improving research quality; undertaking research collaboration; and securing funding. Premier's reporting emphasised that building its research culture is based on autonomy, achieving excellence, and creating an innovative and enterprising environment. Building a research capability is dependent on staff, students, programmes, support services including research infrastructure - centres, institutes, and other facilities. Premier places high value on research quality through the recruitment of top ranking researchers which then attracts high quality postgraduate students. Research quality influences the ranking and reputation of the university. To be a research led international university, Premier engages in collaborative research with international partner universities, industry, research institutes, and business. It attracts substantial research funding through various external sources and measures its success by the size of its research revenue. Some quotes from the 2006 university annual report captures some of the major themes as follows:

"A strong research and innovation culture is a key requirement for any modern international university"

"The continuing rapid growth in research contracting and commercialisation activities with business and industry and the growing number of companies spun out from academia, clearly attest to the fact

that university research capability is one of the key drivers of local and international innovation systems.”

Premier’s annual reports do not contain any specific details on objectives, key performance indicators, and achievements relating to commercialisation activities. The only reporting as described above is on narrative sections of the annual reports. Interviewees explained that the university annual reporting is based around the strategic objectives and key performance indicators that the government has negotiated with Premier and funded. This is set out in Premier’s Investment Plan which is a rolling statement describing the university’s plans and activities for the next three years. The Investment Plan under the Education Act 1989 is also the base document which the Tertiary Education Commission (TEC) must utilise to release general funding. Commercialisation activities are not funded by TEC and therefore the university is not obliged to report on these activities.

“The objectives will flow from the government approved profiles (now replaced by investment plans). It is really just collecting the information up around the particular KPI that we are choosing to report on.” (Director M)

The commercial company of Premier receives all funding from commercial activities and is responsible for reporting the results of its activities and financial performance to the university. Premier only picks up the total income and expenditure and consolidates these figures in its annual report.

“If it goes through the (commercial company), it is reported through the (commercial company). If it is public good it is reported through the university. The annual report actually separates out ‘university only’ and the ‘group’.” Director M

While the university does not report on specific commercialisation activities, it requires the commercial company to provide more comprehensive reports to the university to avoid any accountability deficits.

“ Connecting that with accountability, we have quite a high level of reporting around where we have spent our money, to allow the university to see that, buying patents or investing in further developments of an idea to take it to a commercial point”. (Director C)

On reporting by Premier’s commercial company, Director C explained:

“Setting up our strategic plan actually determines where we are actually most interested in reporting back to our stakeholders, which are in the first case, the university and their staff, and then following on from that their customers who are stakeholders, as well as the general public both here nationally in NZ and internationally. So we see the stakeholders’ interests in information are heavily connected to our strategic plan, so we take the drivers for revenue, commercialisation, and inventions and for research, sales or education sales, as all being the critical measures that we look to report.”

The commercial company also produces an annual report which is circulated widely to its clients. The annual report does not contain any financial information but narratives on events and activities.

“What we have always tried to do is provide a stakeholder report through our annual report, which allows the stakeholders to see what our activities are and what we were doing and how we are going about it, to make sure there is a very good view, and that report we put out 4,500 copies, a lot to the staff but also our customers, to our banks and to our international clients.” (Director B)

The primary motivation behind reporting is largely aimed at projecting a positive image as well as providing a measure of confidence to clients in the research capability of staff. .

“That’s a promotional document” (CEO P)

“We have really aimed to try to tell people as much as possible about commercial activities that we have been successful with, continuously lifting the reputation of the organisation, because reputation is important to our success because it build confidence with clients that we can deliver against our projects.” (Director B)

Interviewees were concerned that performance is difficult to quantify and measure because of the uncertain context and long term nature of the projects.

“Revenue is a simple one, actually I am a not for profit, all the money I produce goes to the university, in one form or another.” (CEO P)

“NZ sector performance is best undertaken by looking at the macro perspective” (Consultant J)

CASE – UNIVERSAL UNIVERSITY

Universal is a fast growing NZ university with about thirty schools organised into five major faculties offering a wide range of programmes in many disciplines. In the last seven years, Universal has undergone considerable changes aimed at strengthening its research and postgraduate education. It has been positioning itself as a world class university. Universal places major emphasis on fostering of research that is applicable to the external world as well as contributes to the social and economic advancement of NZ. It has a primary responsibility to meet the needs of its communities, professions, business and industry with a major focus for both independent and collaborative research. Universal has been engaged in commercialisation activities for the past ten years. In recent years, it has made a major commitment to the development and commercialisation of its research and intellectual property. The key research areas of specialisation that allows Universal to achieve high standards of research excellence within the context of constrained resources have been identified as being Information and Computer Sciences, Biotechnology, Environmental Science, Engineering, and Public Health. In terms of commercialisation of research, Universal has specifically stated its key strategic priority as:

“Ensuring that our commercialisation activities enhance our reputation as an applied and engaged university.”

To ensure research activity is sustainable, Universal’s key strategic priorities has a focus on increasing external research revenue; operating a robust infrastructure to support research and development of an enhanced critical mass of research capability in key areas and ensuring that key research institutes and centres provide a foundation for postgraduate teaching and learning. In terms of the recognising the research outcomes from strategic objectives and priorities, Universal’s Strategic Plan 2007-2011 notes that:

“There will be a self evident relationship between the University’s research, consultancy and commercialisation.

Universal has its own commercialisation company that is actively engaged in the transfer of research and technology, consultancy services, technology licensing and spin-off creation.

Stakeholder Expectations

Universal has placed great importance on its stakeholders to influence and guide the university's research activities leading to commercialisation. It has identified some of its key stakeholders as government and funding agencies, staff, students, industry, business, community and professional groups, and international partners.

"...we serve a great big regional population, a national population and international community. And within that there are lots and lots of varying interest". (Director M)

The government, through the Ministry of Education and the Tertiary Education Commission (TEC), determines and maintains the policy and funding environment in which the university operates.

"We are a university that is very heavily dependent on government and student funding, and it would be really nice to have an alternative". (Director J)

The government's expectations are that the university will deliver the research outcomes for which funding was granted and this also lead to the university making a significant contribution to the development goals of the nation. These views were shared by senior government tertiary education policy managers. Staff and students were identified as the most important internal stakeholders having a very high expectation that the university will provide funding and support to build their research capability and capacity that would ultimately lead to commercial outcomes.

"The university has made an investment in me, and that's a personal obligation to repay that investment many, many, many fold." (Professor S)

Staff and students also have a very high expectation that the university will provide an innovative and enterprising research culture. These institutional entrepreneurs (researchers) require a great deal of professional autonomy to pursue their interests as evident from the following comments:

"The university is smart enough to know that a person like me will not stand up to interference. If you give me the field I will run it, and I will run it in a way that the university will get everything they want from it, they will get high profile, they get money, they get research outputs, if they let me run it. The moment people start interfering is the day that I disappear, and that's why I am at this university and not with any of the other universities. I will be able to attract a better quality of PhD student." (Professor S)

Universal consults with external industry, community, and professional bodies to determine the needs of businesses and industry and collaborates with these stakeholders to deliver commercial outcomes that contribute effectively to the new knowledge economy. Business and industry expectations are for good research that will lead to innovative solutions meeting their needs.

"The University has a longstanding research engagement with industry and the professions, and strong emphasis is placed upon the practical, social and economic utility of research undertaken at the University." (Investment Plan 2008-2010)

In the university's investment plan, Universal has specifically stated its intention to seek leading national and international researchers to support and lead the development of research. There is a high expectation that collaborative research will lead to commercial products. Interviewees described the university's expectation as building on its reputation and profile as research and commercialisation is highly regarded in both academic and industry circles. There is a high expectation at Universal that commercialisation will lead to development of its research capacity and provide an outlet for taking research to the next level.

Managing Accountability Expectations using structural mechanisms

Following a recent review of research performance, Universal has placed a very high importance on the development of appropriate structures to manage accountability expectations towards enabling research commercialisation. It has adopted an integrated model of commercialisation with its commercialisation office located within the university research office to facilitate commercialisation. It also has a separate commercialisation company headed by a CEO. Recently Universal "*merged some of its administrative divisions supporting research and commercialisation to ensure that emphasis is not only on commercialisation but also on the contribution of commercialisation to the support and development of research capacity at the university*" (Annual Report 2006). It has established a technology park that houses university research groups, start-up companies in a business incubator, and several mentor and commercial companies. Universal regards that this will provide a vibrant environment and an innovative approach to commercialisation. Universal's central research office has an important role in supporting the development of research at the university. Its major focus is on enhancing the research culture, growing capability and capacity in key research areas and promoting effective relationships between university researchers and external stakeholders that is mutually beneficial.

"The university is investing in structures which facilitate research, such as the research institutes and clusters, and it is providing staff with the opportunity and encouragement to conduct research".
(Investment Plan 2008-2010)

Information from the university website indicates that Universal currently has fifteen research institutes established and funded by the university to bring focus to research activity and foster a strong research-led culture that will lead to the development and commercialisation of innovative products. These research institutes are hosted by the university faculties. Having research institutes ensures that resources are concentrated into the areas where the university has capability. The institutes are the key concentration of research activity, and within these institutes, centres of research activity are also developing. The Institutes and centres also have an important training role for postgraduate students. The largest research institute has stated its key objectives to encourage and foster cross-disciplinary collaborative research; act as a champion in the collection of funding from a variety of sources; and attract industry projects and funding. Another key research institute has its main objectives to establish internationally as a high profile research institute and attract significant research funds both in NZ and internationally. The following comments made by the Director of a large research institute reflect the motivations.

"I have the accountability to the university to generate profile and funding for the university. I've got academic freedom." (Director C)

He went on to further explain that the research institute structure serves not only as an important mechanism to attract funding and build profile but it also helps bring together

professionals through research collaborations, provides them with resources and much needed autonomy that helps build research capacity. “*Structure also helps build the critical mass and enhances the research culture*”. Universal established a commercial company with the aim to strengthen research capability within the university; to facilitate the commercialisation of university research and development; and to provide practical support for entrepreneurial activity. It was housed within its technology park thus enabling a unique collaborate environment with established businesses. It also brings together, legal and business expertise not found in universities. As was commented by CEO K:

“The benefit is that the technology park will bring these technologies into the university and then we can apply some of our research capability to those companies, and so the university gets the opportunity for both staff and students to work with real live companies and their technologies, and because we have a professor and a couple of PhD students working with these companies, the opportunity for the companies is to take their technologies to new levels that they would not normally have the resources to do so”.

Communicative mechanisms

Universal’s charter, strategic plans, profiles and investment plans are formal communicative mechanisms that clearly lay out the intent and commitment to research and commercialisation. These provide positive narratives largely aimed at enhancing reputation and providing legitimacy for engagement in commercialisation activities. As was evidenced from Universal’s Strategic Plan 2007-2011,

“Our reputation will be enhanced by the quality of the research undertaken by our staff and postgraduate students. There will be a self evident relationship between the University’s research, consultancy and commercialisation. Our success in increasing research activity will result, inter alia, in a research rich environment for learning and teaching, an improved Performance Based Research Funding (PBRF) rating, increased consultancy contracts and more commercialisation of intellectual property. The University’s reputation for research in key areas will lead to increased research collaborations, both nationally and internationally, and we will be the leading provider for doctoral students studying in these areas”.

The university web page provides an extensive range of narratives about the activities and events relating to research and commercialisation. These web pages are also linked to separate web pages of the institutes and the research centres giving details relating to the mission, objectives, partnership arrangements, and key staff members with international affiliations, etc. It’s mainly to build profile and help establish identity and to provide legitimacy. For example, one research group has put on its web site its vision as: “*Recognised world leading facilities, expertise and profile via a unique portfolio and network of multi-disciplinary Groups.*” In addition to the website information the university and individual faculties also publish research newsletters, and information bulletins on research and commercialisation activities. As was commented by a Research Institute Director:

“...the most value will come to the university in the form of profile, as in mentioning and being in the press and the media...” (Director S)

The annual report is widely regarded as the key accountability mechanism. For successive years since 2002 the university has dedicated a section of the annual report to provide a narrative on research and commercialisation activities. The narratives appear to be largely

focused on reporting success, funding and promotions aspects. Some examples from the 2007 annual report follow:

“Substantial progress has been made in building research capability at the university, with 2007 showing steady improvements in key areas of research performance, including research outputs and postgraduate enrolments and completions”.

“The high rate of external research income in 2007 continues the trend of past five years”.

“The university’s research culture has continued to flourish. The research institutes have produced significant results in terms of research outputs, external research income, and postgraduate supervision, and three research institute directors were selected as finalists in Bayer Innovators Awards 2007”

Up until 2006, the university had set a specific performance objective to increase the commercialisation of research activity. It had two key performance indicators on which it reported – to increase identifiable commercialisable pieces of intellectual property, and to graduate high growth companies from its technology park. However, in the 2007 annual report, the commercialisation objective was dropped off. Reasons provided by Director J was that: *“...if it is not in the investment plan then we don’t actually have to report on it in the annual report...”*

Director M who has a key role in planning explained that,

“I will be honest with you, this is my opinion, and some of it would be that the overall research capability became more important. I am not saying commercialisation isn’t vital to that; we have got some other KPIs more about building our staff capability, building research capability overall. Maybe it is also because commercialisation at (Universal) is probably in its infancy, so there’s sort of a bit of a mix of KPIs that stretch us and ones that we know we can achieve and be seen to be achieving on”.

A review of the 2007 KPIs in the annual report confirmed this view. The only KPIs reported that vaguely related to research was as follows: percentage of students studying in higher education programmes; to increase masters and doctorate enrolments; and to increase external research revenue. However, these indicators have been a standard reporting practice from the past and gave no indication of Universal’s performance relating to commercialisation initiatives. Based on the evidence gathered from interviews and other reporting documents, it seems that measures of research commercialisation were dropped because the research centres, institutes and the commercial company had effectively decoupled themselves from these technical requirements. Interviewees explained that it became difficult to implement, monitor, and report on commercialisation performance because of the uncertain nature of the activities that could lead to measureable outcomes. There were also conflicting views on KPIs and how performance needs to be measured and reported. An interesting and opposing view expressed by a researcher and Institute Director was:

“People tend to measure success in the wrong way. They measure success, particularly in my area, by they raised this amount of money; they have just done this, but I measure success in that they have got product in the market, and they are making money; not they have got a one-off payment or they have raised a grant. Success is not measured properly in this industry – why? Because there are virtually no successes to measure in this industry, so they are measuring things that aren’t successful”.
(Director H)

On how the university arrives at KPIs and measures of success that it reports on, Director M commented that,

“.. I don’t know whether I should say this, but actually when you are setting targets and things, we will look at where we are currently, where the university might wish to go, and some of it will be heavily aligned with the strategic plan, over 5 years, and project out, and then look at what you would have to achieve annually to get there. Others, some of us, probably made some of the numbers up – an informed way of doing it.”

The comment ‘making some of the numbers up’ highlights some of the real problems encountered by strategic planners when framing accountability requirements under NPM in an uncertain context. Universities are heavily dependent on government policy and funding and under conditions of uncertainty they are encouraged to overstate some of their goals and objectives to create a favourable impression that would help secure maximum resources. However, this creates major difficulties as unclear or ambiguous goals and objectives cannot be operationalised into measurable outcomes in terms of NPM accountability requirements.

Universal’s commercial company does not run its separate accounting system and is subject to the internal financial reporting and monitoring requirements of the university. Similarly, all research institutes and centres have their budgets to operate with and the university generates monthly financial reports on performance. A faculty accountant with responsibility for a large research institute commented that there are strict internal accounting and accountability requirements that are managed centrally and not by the research institute. Research institutes have effectively decoupled themselves from these technical requirements. On external reporting to funding agencies he commented:

“Normally, the enormous progress report is focussing on the research content and how we are managing the research per se, as opposed to financial reporting. The control is within the individual researchers and the schools with which those researchers are associated with. They have a more detailed day-to day, or month-to-month management reporting going on.”

Comments by a high profile researcher on accountability and reporting was that,

“Well, if we chase money through the research institute, the accountability is to the funder – they send in auditors. I have no accountability to the public that they have the right to know what we are doing.” (Professor H)

6. DISCUSSION

The case narratives described above provide useful insights into how the two universities manage accountability expectations in an uncertain context of research commercialisation. At Premier, commercialisation is seen as a vital role of the institution, especially in terms of its contribution to the social and economic development goals of the nation. The commercialisation mission has become firmly embedded in all strategic documents. With over twenty years of engagement, commercialisation has become a taken for granted practice of the institution thus achieving a rule-like status with the attributes of exteriority and objectivity. Universal has also adopted the commercialisation mission alongside teaching and research. Although there are varying levels of enforceability, the universities ten years of engagement in research commercialisation exhibit permanence. It has become a taken for granted role of the institution as alternatives are literally unthinkable. Institutionalization is

“*not an all or nothing proposition*”p355 (Rao & Kenny, 2008, p. 355) and organisational forms or social patterns can be more or less institutionalised (Tolbert & Zucker, 1996). Based on this analysis, it is safe to argue that commercialisation has become institutionalised at Premier and Universal. Both universities operate within the same institutional environment and are subject to similar institutional pressures for conformity and convergence. Within the institutional environment are the regulative, normative and cultural-cognitive factors that determines to whom and for what universities are accountable. The regulatory environment is made of regulatory institutions such as government funding and audit agencies. Both case universities receive substantial funding from funding agencies and are subject to coercive pressures to comply with their strict accountability requirements to ensure ongoing funding support. As government makes funding allocations across certain priority research areas, both universities were coerced into creating structures and mechanisms designed to receive this funding. For example, funding for the CoREs will not go to the Premier if it does not host these research centers. Similarly Universal created some research institutes to specifically target government funding and clearly stated this as its key objective. Hence, the research institutes and centers provide legitimacy for funding allocations. Apart from the structural configuration, the communicative mechanisms also emphasized how much the universities rely on government funding to build their research capability and deliver the research outputs. Both universities felt that accountability is only to the funder and if the government had not provided funding then there is no accountability to government. So coercion is both ways here and this is understandable because of the dialectical nature of the accountability relationship between government and universities. Premier channels it’s funding from private sources relating to commercial projects to its commercial company. Under NPM model of public accountability, universities must set objectives, measure performance, and report on outcomes. However, both universities felt that they were under no obligation to do this as NPM model of public accountability only applies to public funded projects. By setting up commercial companies, both universities were able to decouple their commercial operations from the requirements of NPM reporting. This was a deliberate attempt by both universities to maintain secrecy over their commercialization activities and this may have created accountability deficits under the NPM model of public accountability in the form of non disclosure of commercialization objectives, performance measures, and outcomes. On the other hand, it was interesting to note that the commercial company of Premier had adopted the NPM model of strategic planning for its internal reporting. This they did as a result of coercive pressure from the university to ensure that the goals of both the commercial company and the goals of the university were well aligned. The commercial company director M explained that “*the management will make sure that our strategic plan is actually parallel with the university’s strategic plan, so we don’t actually run in a different direction*”.

Both universities were subject to *normative isomorphism* with an increasing focus on commercialization arising through the growth of researchers and their professional research networks that legitimate directions. In both universities there was a strong normative pressure from the researchers for professional autonomy to build research capability and capacity rather than be subject to bureaucratic accountability under NPM. Therefore, accountability has a stronger normative perspective focused on building research capability and capacity. The researcher’s high profile, professional recognition and reputation, and funding success appeared to be the main sources of power through which normative pressure was exerted. There was much greater recognition of accountability notably in norms and practices related to career advancement and in development and dissemination of knowledge. Both universities firmly believed that commercialisation could allow researchers to be relevant and give something back to their community. It could help reach new audiences, and better

understand the needs of the industry and make a valuable contribution to the economic and social goals of the nation. It could help build research capacity and capability, improve the research culture, and improve research performance leading to higher profile and reputation. The opportunity for collaboration with people from outside the university, from government agencies, businesses or industry, or from colleagues from other disciplines could greatly benefit by way of access to expertise, new contacts and partnerships, and stronger research relationships leading to possibly greater research funding. Both universities demonstrated a commitment to research excellence and prestige and professional rating concerns was a strong factor in influencing their decision to provide professional autonomy to their researchers. The number of research centres and institutes that have been created to operate as autonomous units within each university is a testimony to researchers' professional autonomy. This had also caused normative fragmentation (Oliver, 1992, p. 575) at Universal as more researchers and professors were hired thus creating professional boundaries and tensions between academic and research missions. This situation had worsened when different structures were created with different employment conditions for research active and teaching staff. However, the tension was eventually diffused as some researchers and professors (key actors) became established in their 'subject positions' referred as legitimated identities that are available in a field (Oakes et al., 1998). The subject position allowed them to exercise power and access resources to build the research capacity of the institution. Some of the top researchers rose to become institutional entrepreneurs of their academic disciplines. However, given the deeply embedded norms, values and practices of a teaching institution, institutional entrepreneurs had to mobilise support of other actors, by forming research alliances and collaboration with government, industry and international partners. In so doing, institutional entrepreneurship became a collective action (Hardy & Maguire, 2008) that also led to the establishment of multidisciplinary research units. Although Premier is an established research university, the institutional entrepreneurs who had pioneered the development of the larger research institutes had continued to play a vital role. Some renowned world class researchers were able to secure dominant positions in their field and were able to use their superior status to mobilise resources, rationales and relations in creative ways.(Fligstein, 2001). Institutional entrepreneurs at both institutions made discursive interventions to build research capacity of their institutions by involving researchers with common interest and sharing ideas through collective sense making process. In this manner greater emphasis was placed on the research profile and expertise of the institutional entrepreneur. This helped ensure that researchers and academics alike who might not otherwise engage in research commercialisation activities actually became allies.

At both universities, the research centres and institutes were decoupled for 'sagacious conformity' and were used as legitimizing devices to secure both internal and external funding. Universal has a strong focus on teaching, basic research, and service to community often with multiple and conflicting stakeholder needs. To give focus to research in areas of strategic excellence, it had to decouple from the faculty structure by creating research institutes and promoted it as autonomous units. Decoupling became a safeguarding mechanism in a heterogeneous field to cope with conflicting demands in a way that helped build research capability of the institution. Decoupling also was a strategic response as larger research centres of excellence were proactively created by both universities to give a high research profile and help secure much needed government grants. Structural mechanisms also served as bridging mechanisms that helped in building an innovative and enterprising research culture as universities engaged in more collaborative research especially with international researchers. Larger research centres had the critical mass that assisted in attracting much need funding which also helped in building reputation and profile. For

example, Premier's CoREs combine extensive national and international networks and complementary skills from its research institutes and centres, partner universities, industry, and government research agencies to promote cutting edge research. Evidence of the effectiveness of the bridging mechanisms could be found in strategic planning and reporting documents of both institutions. Premier's 2007 annual report captures the effectiveness of one of its research institutes as a bridging mechanism by highlighting that "... *the institute's major achievements for 2007 include new major research funding, new prestigious international collaborations ... and increased public promotion of science and research outputs.*"

Structure also served as buffering mechanisms from technical compliance and central control that threatened the professional autonomy of the researchers. It was interesting to note the comments made by a senior research scientist that "(t)he university is smart enough to know that a person like me will not stand up to interference." At both universities, the research institutes were not subjected to the detailed accountability requirements of NPM. The setting of goals and objectives consistent with the mission, establishing strategies to accomplish goals, and measuring and reporting on outcomes were mostly not undertaken because of the uncertain nature of research commercialisation activities. However, in most cases budget setting and internal monitoring was still required and either undertaken centrally or by faculty support.

The cultural-cognitive factors also had an impact on both universities since their accountability is shaped by socially constructed rules derived from the institutional environment. Both universities are expected to engage in commercialization of research, be innovative and enterprising, and contribute to the social and economic goals of the nation. Since commercialization has become powerfully adapted by the institutional environment, failure to participate will not provide them with legitimacy and resources. This will also adversely affect their reputation and rankings. Since all universities operate in an institution environment, the pressure for conformity and homogenisation also leads to mimetic isomorphism as they tend to model themselves after similar successful organisations. Premier has been a very successful research university that models and benchmarks itself after some successful overseas partner universities. It places top priority on its reputation and ranking. The emphasis on ratings and reputation has become its important communicative strategy which also legitimises its activities. On the other hand, Universal is a new emerging university and has modelled itself on Premier. This has given rise to similar structural mechanisms in the form of research institutes and research centres thus providing it with an institutional status. Similarly, the communicative mechanisms of both universities in the form of positive narratives of commercialisation activities appear to be rationally constructed in order to enhance legitimacy and accountability relationships. The strategic planning documents of both institutions clearly lay out the intent and commitment to research commercialisation; although in Premier's case the commercialisation mission was much clearer. The rhetoric in the strategic documents of both institutions was very convincing. In a sense, it appeared to be necessary and integral to obtaining legitimacy for their research commercialisation mission. As strategic plans are high level accountability documents, accountability seems to have become defined as 'representational faithfulness' to the rhetoric in these documents (Oakes et al., 1998). Hence, the need to specify research commercialisation objectives, outcome measures, and report on performance in terms of NPM accountability requirements seems unimportant thus allowing for its decoupling from the annual reports of Premier and Universal. For both universities, reporting was largely aimed at enhancing the reputation and research profile of the institution and providing a measure of confidence to stakeholders in the research capability of staff.

7. CONCLUSION

This study was motivated by calls for an urgent need to bring to attention concrete examples of accountability in action to usefully complement the more theoretical and abstract discussions that have appeared in literature. As such, the study utilised structural and communicative mechanisms as examples of strategic devices to demonstrate how accountability expectations were managed. The study has demonstrated that within an uncertain context of university research commercialisation, institutionalized practices flourish as universities develop responses to achieve legitimacy by adopting practices widely believed to be rational. This is at odds with NPM accountability that places high value on what is produced, observed, and measured. The findings suggest that the coercive, normative, and mimetic pressure from the institutional environment had influenced the structural and communicative mechanisms used to manage accountability expectations. In the context of uncertainty, accountability has a stronger normative perspective focused on the process of building research capability and capacity. Research commercialisation will only happen if universities have commercialisable intellectual property (IP) and to develop commercialisable IP requires years of dedicated research. Despite these efforts, there is still no guarantee that the research outputs produced can be commercialized. Current NPM accountability is results oriented placing strong emphasis on short-term research outcome measures. It fails to fully recognize the long-term research processes and university efforts dedicated towards the development of research capability. Accountability is not only measuring the outcome, while assuming the process. Much greater attention needs to be given to the normative perspective of accountability to help understand the long-term research development processes of universities.

The study has demonstrated the use of structural and communicative strategies as key accountability mechanisms. To manage wider accountability expectations, both universities adopted structural configurations based on three broad institutional arrangements – regulatory, normative, and cultural-cognitive. Structure largely influenced by normative pressure helps create professional boundaries and act as a bridging mechanism in collaborative research. The study has also highlighted that institutional entrepreneurs have an influential role in altering structures with deeply embedded norms, values and practices. They can use their subject positions with legitimated identities to mobilise support of other actors and form research alliances and collaborative arrangements. Legitimacy is crucial to garnering resources from external stakeholders and decoupling can be used as an effective mechanism to obtain legitimacy. This study has demonstrated how decoupling as a strategic response was used to proactively create larger research centres of excellence. These centres provided a high research profile and served as legitimising devices to secure much needed government funding..Structure also provided a buffer from central control and accountability and reporting requirements of NPM. Research centres and institutes helped preserve the professional autonomy of researchers and not subject them to the bureaucratic procedures aimed at formal compliance and control.

The findings of the study also suggest that under conditions of uncertainty relating to commercialisation outcomes, there is greater reliance on the use of positive communicative narratives to influence powerful stakeholders and enhance accountability relationships. Positive communicative narratives of commercialisation activities appear to be rationally constructed in order to help provide legitimacy and secure funding. The rhetoric in the strategic documents of both institutions seems to suggest that NPM accountability has become a ‘representational faithfulness’ to the rhetoric in these documents. The study

recommends that attention to specific context is required in framing new approaches to accountability in the public sector. An obvious extension to this study will be to conduct a much broader examination of detailed organisational processes and policies, governance mechanisms, and rewards and incentive systems that may have an influence on appropriate accountability arrangements.

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Appendix A

Interview Questions:

- 1) What factors are prompting the increase in expectation for research commercialisation?
- 2) How responsive is the TEI to the pace of commercialisation?
- 3) What are the obstacles and challenges and how these are managed?
- 4) How commercialisation is actualised, that is, are there alternative models of commercialisation and if so, what are the different configurations of these models?
- 5) How are these models implemented? What factors influence its choice?
- 6) What are the outcomes of these models – both positive and negative aspects?
- 7) How are the outcomes measured and reported and possible incentives and disincentives attached to it?

Questions on Accountability:

- 8) What are the primary rationales that underly TEI's accountability approaches to research commercialisation?
- 9) What factors determine to whom and for what TEIs are accountable to?
- 10) Who are the opinion leaders and key stakeholders and what are their roles in fostering commercialisation?
- 11) What mechanisms do TEIs employ to manage the stakeholder expectations?
- 12) How is performance measured and reported? What is being measured and reported? Why?
- 13) What is the role of the annual report?
- 14) What is the scope, purposes and modus operandi of voluntary reporting strategies?