Accountability in Action: Contradictory Effects and Consequences in the Context of University Research Commercialisation

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Abstract

Purpose - This study responds to calls for 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.

Design/methodology/approach – This is a qualitative research based on a case study of university research commercialisation informed by accountability and new institutional theoretical perspectives.

Findings - The findings reveal the contradictory effects and consequences of *ex post* accountability assessment that undermines the learning and development purpose of accountability. The study suggests that contradictions between accountability purpose and accountability assessment encourages 'organisational narcissism' by allowing universities to privilege their own legitimacy at the expense of the broader accountability purpose thus widening the gap between the rhetoric and reality of public sector accountability.

Research limitations – The findings are based on a single university case study.

Practical implications - An alignment of accountability assessment based on a clear understanding of accountability purpose will avoid shallow rituals of legitimisation that erodes true accountability in universities.

Originality/value – The study is original and one of the very few that examines accountability in action within a real organisational context. This study makes a useful contribution to the understanding of two key dimensions of accountability – accountability purpose and accountability assessment.

Keywords: Accountability, commercialisation, legitimisation, New Public Management

1. Introduction

Since the 1980s, New Public Management (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). Of greater concern is that the quest to enhance accountability has the potential to yield contradictory effects (Nassi & Steccolini, 2008). Indeed accountability appears to be an ever expanding concept (Mulgan, 2000), but questions remain whether the growth of accountability arrangements actually work in the intended fashion (Bovens, Schillemans, & Hart, 2008). This is because the realities of many public sector organizations today is characterised by uncertainty, complexity, interdependence, diversity, and instability (Zapico-Goni, 2007). Under such conditions, the current accumulation of accountability arrangements defeats any reasonable purpose (Bovens et al., 2008). These concerns have prompted calls for 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).

Responding to the call, this paper examines and critiques how accountability was operationised in the context of university research commercialisation. It is expected that attention to such specific context will enable rethinking new approaches to accountability in the public sector. Within universities, over time, the accountability purpose seems to have shifted from systems efficiency, to academic quality, to productivity, and to external responsiveness to public priorities or market demands (Burke, 2005, p. 4). New purposes appear to have been incrementally added over time with the underlying intent of accountability suffering from many or often conflicting expectations. More recently, the growing accountability focus has been on academic research commercialisation (Drabenstott, 2008; Gauthier, 2004; Goldfarb & Henrekson, 2003; Gulbrandsen & Smeby, 2005; Jones, McCarney, & Skolnik, 2005; Keeling, 2006; Shattock, 2005).

Research commercialisation is 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). A broad range of stakeholders are increasingly asking universities to justify the use of public resources and more thoroughly account for their research performance (Dahlstrand, 2008; Fielen, 2007; Gauthier, 2004). There is a dominant belief that previous government policies have failed to achieve desired results in the form of economic growth, knowledge transfer to industry and commercialisation of research results (for e.g. Dahlstrand,

2008; Goldfarb & Henrekson, 2003). This study is important as universities are now being challenged to cope with a growing accountability agenda across most parts of the world (Salmi, 2009). Despite the expanding accountability agenda, very little is known about how public sector bureaucrats understand and view existing accountability arrangements and how these shape university research commercialisation.

The aim of this paper is to contribute to a more comprehensive understanding of public sector accountability by examining how accountability was operationised in the context of university research commercialisation. In particular, the paper examines how public sector accountability assessment mechanisms influence accountability purpose within the context of university research commercialisation. This research is based on a case study of a New Zealand university engaged in the commercialisation of research. In NZ, universities undertaking commercialisation of research operate in a complex environment with the bulk of their basic research funding derived from the public purse in terms of a performance based research funding (PBRF) assessment on research quality. They may also receive private funding from industry and collaborative research partners as well as have internally generated research funds mainly derived from student fees over which they have considerable autonomy of use. Given the complexity surrounding university research funding and outcomes, this study assumes that research commercialisation encompasses all externally and internally funded research that has a commercialisation potential.

The remainder of the paper is organized as follows. The next two sections review relevant literature on research commercialisation and accountability and outline the theoretical perspectives to help inform the study. The subsequent sections outline the research method followed by a description of case context and findings. The final two sections provide a case discussion and critique with some concluding remarks.

2. Literature Review

In the public sector, commercialisation was introduced as an economic reform process broadly inspired by NPM initiatives to enhance accountability and economic efficiency (Bayliss & Kessler, 2006; McKenna, 2000; Spicer, Emanuel, & Powell, 1996). Within universities, NPM introduced a managerial culture to inform the research disciplinary culture and prioritise research agendas (Henkel, 2005). Accountability demands based on the logic of NPM places high value on performativity in terms of what is produced, observed and measured (Codd, 2005; Hood, 1991). In recent times, as the rising impact of research and innovation on the economy and society became increasingly clear, the demands for relevance

and accountability for university research have grown (Altbach, 2007; OECD, 2005). In addition to teaching and research, universities have a new mission to stimulate innovation and economic growth through knowledge transfer and commercialisation of research results (Mowery, Nelson, Sampat, & Ziedonis, 2001; Rosenberg & Nelson, 1994).

The pressure for commercialisation of research has placed new accountability demands increasingly dominated by funding, research relevance and potential returns from research successes (Henkel, 2005; OECD, 2005). Accountability within the research commercialisation context has become a powerful force reflecting the concerns of much wider stakeholders to realise the exploitation potential of university research (Altbach, 2007). Universities not only operate in a complex institutional environment, but they are also complex institutions themselves, particularly in relation to their interactions with multiple stakeholders – government, oversight and funding agencies, industry organisations, communities, staff, students and others (Codd, 2005; Lapsley, 2008).Within universities, major accountability tensions arise because individual researchers tend to be driven by the academic value of knowledge, while government and commercial partners are driven by the exploitation value of research measured in terms of potential returns from funds invested (Henkel, 2005; Liyanage, Greenfield, & Don, 1999). With a declining funding base, governments across many nations have now imposed performance - based measures requiring universities to justify their economic development role and demonstrate the societal impact of their research outcomes in order to obtain public research funding (Dill, 2001; Rasmussen, Moen, & Gulbrandsen, 2006). This has put universities at the centre stage of creation and diffusion of new knowledge considered essential in driving the national innovation plans of many nations' (e.g OECD, 2008; Rasmussen et al., 2006).

While accountability is being increasingly used as an administrative tool for greater control (Mackie, Martin, & Thomson, 1995), it is not just about giving account or providing a comprehensive explanation and justification for one's actions (Bovens, 2007). Institutions must embrace accountability as a fundamental principle of responsible management (Mackie et al., 1995). Put simply, accountability means the requirement to demonstrate responsible actions to wider constituencies (Berdahl, 1990). Too much accountability described as an accountability overkill discourages innovative and entrepreneurial behaviour in public managers (Anechiarico & Jacobs, 1996; Power, 1997). Within universities, too much accountability could potentially "destroy the necessary academic ethos" (Berdahl, 1990, p. 171). With more frequent and intense measures, institutions get better in meeting the requirements but not necessarily performing better in public service delivery (Thiel &

Leeuw, 2003). Bovens (2008) argues that accountability is undermined and its purpose defeated with extraordinary high demands, mutually contradictory evaluation criteria, when performance standards extend way beyond good practices and seem particularly conducive to goal displacement or subversive behaviour.

Within universities, the accumulation of accountability arrangements is complex and research commercialisation has added another dimension to the complexity. Hence, the central research question posed by this study is how universities discharge their accountability obligations for research commercialisation. A subsidiary research question is what are the inherent contradictions and consequences between accountability purpose and accountability assessment. The study is important as it attempts to untangle the complex accountability arrangements in universities. It also responds to calls from researchers to bring to attention concrete examples of accountability in action to usefully complement the more theoretical and abstract discussion that have appeared in literature. The next section outlines the theoretical perspectives to help further inform the study.

3. Theoretical Perspectives

Since this study is on accountability, it utilises the theoretical perspectives on accountability developed by Bovens et al. (2008) to help assess the adequacy of accountability arrangements. According to Aucoin and Heintzman (2000), accountability is the cornerstone of public governance and management meant to serve three overlapping fundamental purposes – control, assurance, and promote learning in pursuit of continuous improvement. Bovens et al. (2008) developed further these three fundamental purposes into three perspectives, providing an assessment tool to help determine the adequacy of accountability arrangements. The three perspectives are the democratic perspective, the constitutional perspective, and the learning perspective. The democratic perspective is based on the central concept that accountability controls legitimises government actions by linking them to a democratic chain of delegation. Here, public accountability is viewed as an essential precondition for the democratic process to work. The constitutional perspective is based on the central idea that accountability is essential to withstand tendencies towards power concentration, corruption and abuse of power. Here, accountability arrangements are designed to keep the executives honest and prevent, or at least uncover and redress, abuse of public authority and resources. The learning perspective views accountability as a tool to make public authorities effective in delivering on their promises and goals. It is based on the central idea that the purpose of public accountability is to induce individuals to learn by

reflecting on successes and failures aimed at enhancing their effectiveness. Here, accountability is not about keeping people honest but about keeping people smart and sharp (Bovens et al., 2008).

Universities are under constant institutional pressures to discharge accountability. Hence, the study also utilises new institutional theoretical perspectives to help explain the university's response to the institutional pressures of accountability. New institutional theory views accountability arrangements as heavily influenced by the institutional environment rather than by rational choice decisions (Lapsley, 2008). The institutional environment is an elaboration of institutionalised beliefs, rules, myths, norms, and procedures to which organisations must conform if they are to receive the support, acquire the needed resources, and gain legitimacy (Meyer & Rowan, 1977; Scott, 2003; Scott & Meyer, 1994). Even though adaptation to institutional environmental pressures may not be the most efficient action, it may be necessary for ongoing funding, support and legitimacy (Jaffee, 2001). Hence, organisations conform and converge through coercive, normative, and mimetic behaviour patterns (DiMaggio & Powell, 1983). Coercive isomorphism results when organisations are forced to comply with requirements of other dominant organisations upon which they are dependent to increase legitimacy. Mimetic isomorphism occurs when organisations model themselves after similar organisations to enhance their own legitimacy (DiMaggio & Powell, 1983, p. 152). Normative isomorphism occurs via professionalisation mainly arising through the growth of professional networks that helps to channel organisation behaviours and procedures in appropriate, expected, and legitimate directions.

Later on Scott (2001) conceptualised that institutions are composed of cultural-cognitive, normative, and regulative elements. The regulative element views institutions as constraining, regularising, and influencing behaviour 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). Regulatory compliance is mainly effected by coercion, rewards, fear, and punishment. Legitimacy is achieved through compliance to existing rules and legislation. The normative element views institutions as comprised of values and norms that provide a moral framework to promote and constrain social behaviour (Scott, 2001). "Unlike externally enforced rules and laws, norms are internalized by participants; behaviour is guided by a sense of what is appropriate, by one's obligations to others, by a commitment to common values" (Scott, 2003, p. 136). According to Romzek (2000, p. 26), accountability has a professional dimension "reflected in work arrangements that afford high degrees of autonomy to individuals who base their decision-making on internalized norms of

appropriate practice." The cultural-cognitive element emphasises that "internal interpretative processes are shaped by external cultural frameworks" (Scott, 2001, p. 58). There is a shared conception and taken-for-granted assumptions and beliefs of how things are done.

New institutional theory also posits that universities may be able to employ buffering mechanisms to subvert institutional pressures of accountability. Buffering refers to organisations attempts to reduce external pressures by partially detaching or decoupling its activities from external contact (Oliver, 1991; Scott, 2003). Decoupling sometimes becomes necessary as a means of maintaining faith and legitimacy of the organisation (Meyer & Rowan, 1977). It helps protect 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). It serves a symbolic or ritual role and becomes an ineffectual exercise to serve hollow legitimation (Friedland & Alford, 1991). Meyer and Rowan (1977) call this sagacious conformity, in which accounting and accountability requirements appear to be in use, but may not be acted upon. Organisations may establish elaborate rational plans and procedures (e.g., mission statements, statement of goals and objectives, budgets) in response to institutional requirements in order to disguise their non-implementation. They can disguise their operations using formal structures and mechanisms such as inspection and evaluations to account for and legitimise their activities to external stakeholders, even though internal operations may not always reflect those accounts (Meyer, 1977). They may engage in "window dressing"; rituals and ceremonies; or demonstrate symbolic acceptance of institutional norms, rules, or requirements (Meyer & Rowan, 1977; Oliver, 1991). In rendering account, there needs to be an appreciation of the communicative mechanisms as common technologies to represent accountability (Black, 2008). Communicative mechanisms (such as strategic plans, budgets and annual reports) provide a means for objectively and accurately representing the organisations activities (Dillard, Rigsby, & Goodman, 2004). However, organisations may seek to decouple the activities requiring maintenance of formal communicative mechanisms to manipulate perceptions of the organisation's activities and performance (Black, 2008). They may project an appearance that is different from reality, because appearance rather than fact of conformity is often presumed as sufficient to gain legitimacy (Oliver, 1991).

4. Research Method

This paper uses case study research to examine how accountability arrangements are operationalised within the context of university research commercialisation. The use of a case

study method 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). The case was purposefully selected to provide information rich sources of data (Chua, 1995; Patton, 1990). There were two primary sources of data – archival and information gathered from semi-structured interviews of individuals from within and outside the university. The archival data comprised of university strategic documents (charter, profiles, and strategic plans), annual reports, newsletters and website information gathered by the researcher covering a time span of eight years from 2002-2010. In New Zealand, accountability for research has been emphasized as a result of the Performance Based Research Fund (PBRF) assessment exercise introduced in 2003. Using archival documents from this period is justified as it enables the study of ex-ante accountability mechanisms, instead of just relying on ex-post interviews that leave room for legitimating existing facts.

In order to gain rich data related to commercialisation of research, the study targeted senior university staff including those with finance and reporting responsibilities, researchers, CEO and directors of commercial company, government policy advisors, and industry representatives. To gain an in-depth understanding of accountability arrangements, it became important to ensure that perceptions of accountability purpose and assessment were gathered from a variety of individuals who were posited differently within the research and commercialisation activities of the university. In total 15 interviews were conducted. 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). Each interview lasted for between an hour and one and a half hours, and was recorded, transcribed and coded using NVivo 8 software. These accounts were supplemented with information from the web sites, annual reports, and other public documents. This information was then analysed in order to develop case descriptions (Yin, 2003). Data analysis was conducted in a way to allow the common patterns and themes to emerge (Miles & Hubermann, 1994; Patton, 1990). The case context and findings from this analysis are presented in the following sections.

5. Case Context

Premier[1] is among New Zealand's leading and largest universities in terms of student enrolments, research staff, and concentration of research activity. Premier's mission is to be

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[1] The name of the university has been changed to maintain the anonymity of the interviewees.

a research-led international university, recognized 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 institution that works synergistically with teaching activities. Its commercialisation mission is to create opportunities based on advanced research, technology, and educational capabilities. Premier has been involved with commercialisation of research for over twenty years, making it one of the earliest universities in NZ to be engaged fully in such activity. Its commercialisation mission signals a strong commitment towards the government strategy for innovation, national development and growth. As one of NZ's largest public-funded research institutions, Premier is widely expected to engage fully towards the achievement of the government's innovation strategy. This obligation is recognised through the commitment it has made in its Profile, a key strategic document that states:

"[Premier] supports the aim of the Government to strengthen research and the creation and uptake of knowledge so that the country can participate more fully in the development of knowledge societies and economies." (Profile: 2005-2007)

Premier's strategic documents clearly identify that it has the responsibility to help foster research commercialisation to help advance the country's identity and its economic, social and cultural development goals. Currently, it has two large-scale research institutes and eight smaller, multi-disciplinary institutes focused on pioneering research. The large-scale research institutes are autonomous multi-disciplinary units independent of the faculty structure. Some large-scale research institutes also houses government-funded Centres of Research Excellence (CoREs) to support world-class research considered of national and international importance. Premier also has a wholly-owned commercialisation company to facilitate research of a commercial nature, manage intellectual property, and provide consulting and technology transfer. According to the CEO, Commercialisation, the separate commercial company structure has helped establish formal links between Premier and industry and international partners.

"...they (Premier) *set us up as a separate business unit so we could act as a commercial entity, and de-politicize decisions. It is very convenient sometimes to constrain behaviour according to other prerogatives that exist in the university."* (CEO, Commercialization)

The CEO emphasised that the commercial company provides a strong business focus to help identify and develop intellectual property, seek 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.

6. Findings

This part of the paper presents the findings of how accountability for research commercialisation was operationalised by Premier in terms of its stated purpose and accountability assessment criteria. First, the paper presents an understanding of the accountability purpose of research commercialisation followed by an analysis of how accountability was assessed. Within these discussions, Premier's reaction and responses in managing tensions between accountability purpose and accountability assessment is also outlined.

5.1 Accountability Purpose

Premier plays a special role in the discovery and transmission of knowledge and recognizes its accountability purpose as the development and commercialisation of its research and creative works. Data collected from document reviews and interviews suggest that research commercialisation is complex, has a long-term development timeframe, and its outcomes are uncertain. Successful commercialisation requires Premier to develop its research capability and capacity and build a vibrant research and innovation culture. Premier recognises that building research capability and capacity is a continuous process that requires long-term strategy with explicit objectives and a clear focus. Accountability, therefore, has a fundamental purpose to promote learning in pursuit of continuous development of research commercialisation initiatives. Premier's 2009-10 Profile specifically states that:

"Our challenge for the future is to build a strong base to establish ourselves firmly among the world's leading universities."

Over past years, Premier's strategic plans and profiles (key strategic documents) have outlined the major areas of its research capability development. They were mainly in key areas of strategic importance determined by using the government's Tertiary Education Strategy (TES) and Performance Based Research Fund (PBRF) assessment criteria. Premier's commitments, stated in its Profile 2008-2010, remain in areas of developing staff capability and resourcing needs, continual improvement of the organisational support systems and

infrastructure, and ongoing engagement with its local and international communities. In terms of developing its staff capability, Premier's Profile 2008-10 specifically states that:

"It seeks to attract the best possible researchers, invest in the development of their research careers, and provide extensive strategic, infrastructural, and administrative support to enable them to gain both a reputation for excellence and external funding."

Premier has a strategy focused on developing a vibrant research culture. Over the past several years, it has been intent on making investments in research and development so that it could have a profound impact on nurturing a strong research culture and generating a critical mass of excellence. In its 2006 and 2007 Annual reports it acknowledges that:

"A strong research and innovation culture is a key requirement for any modern international university" (Annual Report 2006); and *"A vibrant research culture enables universities to attract better staff and students, and to build a culture of inquiry and academic rigor that enables them to contribute more effectively to society in a rapidly changing world."* (2007 Annual Report)

Several interviewees emphasised that to be well-regarded by industry and to be successful in commercialisation efforts, it is important to not just nurture and maintain a vibrant research culture but to also build an enterprising and innovation culture. Industry sources acknowledged that industry is only willing to deal with universities with the right innovation culture that encourages commercialisation of its research. Pursuing a strategy of building and promoting excellence in research also requires Premier to develop research linkages in multi-disciplinary research areas to maximize research synergies and resourcing opportunities. It aims to strengthen links with industry and government through sponsored programmes to ensure that research capability and outcomes contribute to economic development and lead to increased external funding opportunities. Premier recognises that funding determines the extent to which it will be able to build its research capability:

"If Government and private sponsorship of research and development were to falter over the next few years, the capacity of the University to support its researchers would be seriously compromised." (Profile 2008-10)

There is considerable emphasis on developing research institutes and centres to enable Premier to provide professional researchers with autonomy, enable pooling of the required resources to increase its capacity and capability to undertake novel and leading-edge fundamental research.

"I think the critical thing with the institute is that there is enough critical mass and I think momentum that we can support people who have different interest and capabilities in totally different areas." (Deputy Director, Research Institute)

Premier's commercial company is also charged with developing the TEI's research capacity and capability by increasing its research base and resources. It promotes and protects new inventions, helps develop bright ideas arising from research through to the point where they are ready for investment, and develops new infrastructure by sponsoring new centres of research at the institution. It has separate technology transfer teams that manage areas of very strong potential future growth. Interviewees emphasised that Premier's separate commercial company structure provides financial independence from the parent institution as there are often high costs involved in building commercialisation capacity. A separate commercialisation company structure helps identify a steady flow of ideas from researchers and enables appropriate action to be taken to prevent commercial ideas being overlooked or put at risk.

5.2 Accountability Assessment

Accountability assessment at Premier is highly institutionalised in terms of NPM requirements. Under NPM accountability, Premier is required to develop strategic plans, set goals and objectives, measure performance, and report on outcomes of all public-funded activities. These requirements have placed with an excessive focus on the bureaucratic process of formal compliance and control that is largely results-oriented based on efficiency and effectiveness measures. As resource allocation models are largely bureaucratic, Premier is subjected to coercive and mimetic isomorphic pressures to align the universities strategic direction and objectives with the government's goals on tertiary education strategy. The strategic documents once negotiated and approved by the government funding agency, Tertiary Education Commission (TEC) becomes the contractual basis on which government delivers funding to Premier. It also becomes the key document that Premier utilises to measure results and report on its performance in terms of the TEC-approved objectives and performance indicators.

From a review of strategic documents, it seemed obvious that Premier has been coerced into setting goals and objectives aligned with government strategies and priorities on tertiary education in order to secure government funding and enhance its own legitimacy. Premier's research objectives and performance measures are largely influenced by government policy

based on PBRF assessment that requires ex post quantification in terms of research funds won, journal publications, and research degree completions. As stated in Premier's Strategic Plan 2005-2012:

"We intend to target our investment to improve performance in each of the three sub-measures of PBRF: quality evaluation of staff; external research income; and research degree completions."

Strategic documents and interviews indicated that improving performance in terms of the PBRF measures is vital for Premier to maintain its high ranking as a research-led institution and enhance the international reputation of research staff and the institute. Premier's basic research funding is based on PBRF measures, so it is strongly motivated to improve performance in terms of its PBRF measures to maximise its research income from PBRF assessment:

"Increased levels of research income will improve our performance in the PBRF and provide additional support for our growing research activities." (Strategic Plan 2005-2012)

Premier recognizes that effective accountability requires meaningful objectives and targets for research commercialisation to be put in place and monitored consistently to help inform organizational practices and innovation policies that support the development goals of the nation. However, the common problem it continues to confront is that accountability assessment in accordance with NPM measures does not accurately reflect commercialisation performance. As has been acknowledged in Premier's 2005 Annual Report:

"...an atmosphere of intellectual excitement...is hard to define and measure, but it might be best explained as the spirit that unites the university as a scholarly community"...

Interviews with senior staff revealed that research commercialisation is not funded by government so Premier has no accountability obligations towards any unfunded commercial activities. Therefore, Premier does not set specific objectives and performance indicators for research commercialisation activities in its strategic documents against which it measures performance. These have been effectively decoupled from Premier's strategic documents preventing NPM accountability assessment to be carried out. Interviewees also stated that performance measures for research commercialisation activities are difficult to specify, quantify, and measure because of the long-term nature of the projects. Decoupling limits the visibility of research commercialisation performance. Premier chooses simple measures such as external revenue targets that are quantifiable. As was explained by the CEO of Commercialisation, *"Revenue is a simple one ...these are the measures that government*

funding agencies have put on universities, so you can't blame the universities for behaving like that, they are behaving the way they're trained."

He went on further to explain that in terms of the commercial company's performance:

"We're rated by the volume of good quality research we bring to the university, and we're rated by the reputation we bring to the university. Thirdly, it is accumulation of assets on behalf of the staff and the university and this might be in the form of equity or licensing."

Research performance under PBRF is assessed in terms of research funds won and this has had a pervasive influence on Premier consistently setting external revenue targets as a key performance indicator of success for its commercial company and research institutes. Given this emphasis, the research institutes, centres, and faculties are primarily driven by funding success as a measure of their performance rather than achieving wider research commercialisation goals. Premier also promotes its research structures mainly in terms of funding success. Interviews with Directors of research centres and institutes revealed that funding success is important as it provides them with legitimacy, raises the profile of the research capability, helps forge international collaborations and attracts top research talent. It enables development of staff and student research capabilities and achieves a critical mass of research excellence which is demonstrated through the growth of the centres and institutes.

While the focus on revenue is deemed not very public spirited as it does not reflect the broader understanding of the commercial and economic benefits of research commercialisation, interviewees explained that external revenue is important to cover shortfalls in government funding. The institutional pressure imposed in terms of revenue targets has also forced the commercial company to publicly state its key strategic objectives in terms of revenue to be generated rather than any specific commercialisation outcomes. In terms of measuring commercialisation success, Premier relies on common metrics such as licensing revenue, contract research and consultancy income, new invention disclosures, number of patents filed, licenses signed and spin-out company formation. However, these capture only a small portion of the commercialisation performance which is largely reported by Premier in terms of commercialisation success stories rather than objective measures of performance outcomes.

Accountability assessment in terms of PBRF goals is also driving the research culture at Premier. Interviewees commented that senior management gave priority to PBRF and not research commercialisation, as PBRF provided a formal assessment of their research

performance against which the university received the bulk of its research funding. Interviewees felt that the PBRF assessment criteria provided bureaucratic obstacles and organisational challenges to research commercialisation. It led to gaming strategies to improve research ratings in an attempt to obtain a larger share of funding from PBRF allocation. The lack of status and visible recognition was discouraging researchers from involvement in commercialisation initiatives, especially with the insufficient kudos attached to research commercialisation. Career academic researchers felt that they have little incentive to be involved with commercialisation activities as the promotion criteria was largely based on PBRF publications record. Some researchers, in fact, consider commercialisation as a diversion from their core activities which has led to the CEO, Commercialisation making the following comments:

"I am concerned that the signals from PBRF which drive the university, drive the staff culture to a large extent, do not reward and recognize commercial outcomes, patents and contracts even." (CEO, Commercialization)

More experienced researchers also expressed concerns that the formal reward systems recognized a narrow band of activities based on an acceptable PBRF publication record that only contributes to Premier's performance under the government's PBRF scheme.

"PBRF does not recognize the nature of the work we do unless it meets their publication requirements. Over the years, I have written over a hundred reports but they don't count towards PBRF." (Researcher)

For this reason, many experienced researchers saw that their role was not to look for commercial opportunities. Others, with a more positive view, saw commercialisation as central to their professional role but were less clear about the extent of their continuing role. It became obvious that a culture, supportive of commercial activity to help staff to overcome barriers such as lack of recognition for commercialisation work, was needed.

It is also fair to say that some top researchers at Premier were largely driven by normative and cultural-cognitive obligations. These are the researchers who have achieved their academic career goals and place high value on solving societal problems and disseminating their research results to the wider community. They are not distracted by the demands for NPM accountability assessment and often place high value on more intrinsic rewards like seeing an outcome such as a cure for a disease. They value peer recognition within the scientific community and are largely motivated by increased autonomy, better students, better

research facilities, and opportunities for international research collaboration with world-class researchers.

"I love working with students, we have fantastic students, I like the high profile of the research unit and I am excited by the possibility of building a much larger research centre." (Researcher)

These researchers saw commercialisation as the opportunity for researchers to be relevant and to give something back to their community or region leading to a higher profile. Impediments to research commercialisation were identified as bureaucratic systems, rewards systems which recognized only a narrow band of activities, and the lack of time and resources for commercial engagements.

The next section presents a discussion and critique of the major findings emerging from the study. They are considered in relation to the theoretical perspectives identified earlier in the study.

7. Discussion

The inherent contradiction between accountability purpose and assessment has exposed the widening gap between the rhetoric and reality of public sector accountability that seems to have become a characteristic of the NPM accountability environment. According to Bovens (2007), the accountability assessment criterion of the learning perspective is the degree to which an accountability arrangement stimulates focus on learning to achieve the desired outcomes. The findings of the study indicate that ex post NPM accountability assessment including PBRF assessment has become an institutionalised practice of giving account that has failed to stimulate learning in terms of commercialisation development. This may help explain the difficulties Premier faced in terms of achieving commercialisation results. The findings are critiqued under the following subheadings:

<u>NPM accountability assessment has a narrow focus causing legitimating behaviour</u>

Under NPM, Premier is held accountable against a narrow set of expectations, stated as specific goals and measures in its strategic documents, against which accountability must be realized. Premier does not appear to be held accountable for developing research commercialisation, as NPM accountability assessment does not place much value on activities where goals, objectives and measures have not been specified. NPM accountability assessment also seems weak as it places an excessive focus on the bureaucratic process of

formal compliance on specified goals and measures (Zapico-Goni, 2007). It relies on standardised accountability measures to satisfy the desires of particular stakeholders, often sources of funding (Oakes & Young, 2008). For Premier, the discharge of accountability obligations under NPM requirements has become a taken-for-granted practice, with a rule-like status. By conforming to institutional expectations of funded research activity, it seems that Premier is regarded as legitimately discharging its research commercialisation responsibilities under NPM, even if there are no specific technical notions of performance accomplishment (DiMaggio & Powell, 1983; Scott, 1987). As such, demands for compliance with NPM accountability requirements are causing legitimating behaviour (Lapsley, 2008) and diverting organisational priorities away from Premier's commercialisation mission. Hence, subjecting research professionals to strict compliance with NPM accountability pressures seems counter-productive to research commercialisation objectives.

NPM also assumes a stable environment with conditions of certainty about expected results. It fails to fully recognise the uncertain, complex, and long-term nature of the research development processes and 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 perspectives and obligations of researchers to help understand the long-term research development processes of universities. In this regard, the normative perspective of accountability has a learning dimension. NPM accountability is also at odds with the normative expectations of research professional groupings who prefer greater autonomy, flexibility, and a culture of trust to produce successful outcomes (Codd, 2005; O'Neill, 2002). Based on the conflicts and tension with NPM accountability assessment, it seems logical that Premier had effectively decoupled from the technical requirements of measuring and reporting performance of its research commercialisation activities.

Accountability has become a "representational faithfulness" to the rhetoric in the strategic documents

The strategic planning documents of Premier are representations of its identity and agency to government. Premier is subject to coercive isomorphism to prepare strategic documents that mirror the dominant discourse from the government. Its strategic documents are regulatory instruments of government negotiation strongly linked to funding. The rhetoric in the strategic documents lay out the intent and commitment to research commercialisation as a necessary and integral condition to obtaining legitimacy for the research commercialisation mission. Premier appears to be also under mimetic isomorphic pressures to represent and

imitate government priorities in its strategic documents to create favourable impressions to gain legitimacy, a necessary condition for approval of government funding. Premier relies on government funding to develop its research capability and capacity. Government relies on Premier to drive the nation's research and innovation goals against which the government is accountable to the nation. So coercion seems to exist in both directions between government and Premier because of their reciprocal accountability relationship. Research commercialisation appears to be legitimised in terms of nation-building activities by the rhetoric in Premier's strategic documents. As strategic plans are high level accountability documents, accountability seems to have become defined as a "representational faithfulness" to the rhetoric in the strategic documents (Oakes, Townley, & Cooper, 1998).

PBRF assessment culture potentially undermines the research commercialisation agenda

PBRF has become the key strategic priority of Premier driving the behaviour of most researchers and the research culture of the institution. Meeting PBRF assessment requirements is a major incentive for most career-minded researchers and is viewed as more appropriately rewarding in terms of meeting the promotion criteria. For Premier, increasing its PBRF quality scores and publication counts helps increase its government research funding. This has had the effect of making the research commercialisation culture less prevalent. The placing of greater emphasis on PBRF performance has made research commercialisation a marginal activity. The PBRF culture, therefore, seems to have been counter-productive to the research commercialisation agenda. In addition, because research commercialisation requires a much longer timeframe and there is no certainty of outcomes, most researchers are not prepared to risk involvement with commercialisation which may jeopardise their academic career. Further, some academic researchers see commercialisation as a diversion from their core activities. However, those researchers who are involved in commercialisation are largely driven by normative and cultural-cognitive obligations. Some have achieved their academic career goals and now place high value on solving societal problems and disseminating their results to the wider community. These researchers are largely driven by professional and peer recognition and a sense of accomplishment in the value they create in their research projects.

Being accountable is not simply accounting for the use of money allocated

Premier strongly views accountability as being related to funding and, if activities are not funded, then no accountability exists. Premier also views accountability simply as accounting

for the money allocated to it by showing that it was spent on items for which it was allocated. Being accountable towards enabling commercialisation of research requires Premier to fulfil its core mission and strategic commitments. The strategic commitments made were to see research in terms of economic contributions and value-added activities extending to new products and processes. This moves beyond seeing research simply in terms of funding levels. Premier receives basic research funding and has accountability to return "value" in terms of commercialisation as an obligatory part of accepting funding to support basic research (Hammerstedt & Blach, 2008).

<u>Premier is making no real attempt to measure research commercialisation performance</u>

While recognising the NPM difficulties stated above, it seems fair to suggest that there is a low level of transparency by Premier in terms of demonstrating accountability, given that they have ignored the operationalisation of their broader commercialisation mission into goals, objectives and measures. As such, the commercialisation mission statement serves a symbolic or ritual role and becomes an ineffectual exercise to serve hollow legitimation (Friedland & Alford, 1991). The effectiveness of enabling commercialisation of research is largely determined by the degree to which Premier realises its goals. Statements about Premier's research commercialisation effectiveness are difficult to validate if goals are not specified. Premier made no real attempt to measure knowledge outputs and outcomes and some input measures, such as external research income received, were over-emphasised to demonstrate the institution's success. Statements made by Premier that they have no obligation to set goals, objectives and performance measures for research commercialisation activities if the projects are not government funded, suggest that they are accountable to no-one but themselves.

8. Conclusion

This paper makes important contributions to the understanding of two key dimensions of accountability – accountability purpose and accountability assessment. The research has demonstrated how accountability is undermined by a lack of alignment between accountability purpose and assessment criteria. Accountability in the context of enabling research commercialisation has a learning and development purpose but accountability assessment based on NPM requirements has created tensions that underlie some of the difficulties and cynicism related to the manner in which universities recognise and discharge their accountability obligations. It seems that the enactment of accountability assessment

under NPM better serves the easily quantifiable and narrow expectations of funders. As was evidenced from the PBRF assessment, Premier tilted too far towards funding incentives rather than extract value from research in terms of developing commercial products.

Accountability assessment based on NPM requirements has also encouraged "organizational narcissism" allowing Premier to privilege its own legitimacy and causing insufficient justice to the research commercialisation agenda (Ganesh, 2003). The accountability purpose was to enhance the learning capacity and development of commercialisation. The accountability assessment should have evaluated its effectiveness and stimulated creation of value from research in terms of commercialisation. However, the NPM based accountability assessment produced shallow rituals of legitimisation rather than satisfy the heterogeneous needs of a broad range of stakeholders who are increasingly asking universities to more thoroughly account for research commercialisation performance. The tension between legitimacy and accountability arising from the contradictory perspectives of accountability assessment and purpose seems to have widened the gap between the rhetoric and reality of public sector accountability.

Commercialisation has a much longer timeframe, usually decades between discovery and exploitation, and there is no certainty of outcomes that may lead to financial success. Its learning and development is underpinned by set of cultural-cognitive and normative beliefs about the importance of commercialisation in terms of economic contributions to the nation and societal needs. For many researchers the greatest reward and incentive was getting a sense of accomplishment in the value they create in their research projects. It is important for universities to have cultural norms that support commercialisation activity to achieve higher levels of commercialisation success. There is opportunity for further research to provide a deeper understanding of the integration of the commercialisation mission into the academic research mission. Government can optimally achieve accountability purpose by matching the characteristics of their funding arrangements to encourage learning and development of research commercialisation rather than just focus on ex post NPM assessment that encourages gaming strategies and ritualistic behaviour. Opportunity for further research also exists to study the effectiveness of government strategy and policy decisions to encourage building research commercialisation capability and capacity with universities. The achievement of accountability rests on the alignment of accountability purpose with the assessment criteria and if characteristics of funding are inconsistent with the need being addressed, then there will be ongoing erosion of true accountability.

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