

Governance Challenges: Considerations in structuring agencies to support innovation

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Introduction

This paper is the first part of a larger project which includes other collaborators and that aims to construct a framework of the policy imperatives and challenges that have implications for the performance and success of the Technology Innovation Agency. This larger project will assess the performance of the agency in terms of creating public value (Moore, 1995) and examine any unintended consequences. Substantial portions of the theoretical considerations and evidence necessary to answer these questions i.e. the purposes, structure and functioning of Nordic-style innovation agencies; the utility of complex principal-agent models; the assessment of transaction costs; the applicability of models of regulatory capture, and the methods to be used in ascertaining the benefits and consequences of TIA -- are addressed in papers being written by my collaborators.

One of the major priorities of government, specifically the Economics cluster in cabinet, during the 2004—2009 term is to build a competitive and labour – absorbing economy through industrial policy. In this regard the department of Science and Technology has been tasked with implementing strategic and cross-cutting interventions for the development of new cutting edge industries. This paper, using one of these strategic and cross-cutting interventions as an example – the creation of a Technology Innovation Agency (TIA) – examines a number of pertinent policy and theoretical issues from a governance perspective. In line with the work of Bovaird and Loffler (2003) on evaluating the quality of public governance, this article broadly defines governance as

the ways in which stakeholders interact with each other in order to influence the outcomes of public policies.

The need for and benefits of establishing a Technology Innovation Agency (TIA) in South Africa was first raised in the 1996 White Paper on Science and Technology and elaborated upon in the 2002 National Research and Development Strategy (NRDS). The establishment of a Technology Innovation Agency was also recommended by the 2007 organization for Economic Co-operation and Development (OECD) in its review of South Africa's Science system. The review noted as a weaknesses "mental models of how the innovation system operates overly focused on the role of the state; and governance of the state components of the innovation system insufficiently holistic [and identifies as opportunity] further modernization of the state's role in the innovation system via 'agentification' and the creation of a national policy arena" (OECD, 2007:11). The OECD report states that: "South Africa could usefully establish a Nordic style innovation agency to bring together strategic research and innovation measures and to develop capabilities both of the productive sector and the knowledge infrastructure."

Agencies and public governance issues

Although various, alternate, multiple and potentially contradictory reasons are often proffered as the reasons for establishing an agency (Pollitt, 2004; and James, 2003); this paper is interested in the respective importance attached by various stakeholders to the following benefits of establishing TIA:

1. To facilitate partnerships with commercial companies and other public sector bodies;
2. To lessen political interference in order to allow regulatory or quasi-judicial decisions to be taken in an impartial manner;
3. To enhance expertise by allowing specialization. Enhancing expertise is presumed to increase efficiency and/or effectiveness.

The primary objective of this paper is to examine a number of policy and theoretical issues pertinent to the creation of TIA from a governance

perspective and does not propose making 'agentification' a primary causal or explanatory variable. A more useful approach, once TIA has been in operation for an appropriate period is "one which directly addresses the characteristics of both the processes and the outputs of the primary tasks [of TIA] and considers the nature of the prevailing administrative culture and examines the management strategy and then works backwards from those specific features to examine the appropriateness of the organizational design. (Pollitt et. al., 2004:24).

This approach is made even more sensible by the lack of a common definition in the literature of an 'agency' or of associated organizational descriptors – 'distributed' or 'autonomous' public bodies – which can be used for comparisons across various jurisdictions. This is because national legal systems differ radically and "both agencies and especially autonomous bodies exhibit almost every conceivable combination of public law and private law and mixed public/private status" (Pollitt et. al., 2004:8). For the purposes of this paper, agencies are defined as organisations whose status are principally or exclusively defined in public law; which are linked through statute to a core ministry or department; which are functionally disaggregated from a core ministry or department; which enjoy some degree of autonomy although the ministry or department can alter their main operational goals and budgets; and which are not commercial corporations (Pollitt et. al., 2004; 10)

This paper therefore adopts the Task-Specific Path Dependency (TSPD) model developed by Pollitt et. al. (2004) for understanding the creation of the Technology Innovation Agency. In this model "what become the fashionable ideas [of organizational change] in practice depends on both the particular history of the jurisdiction in question – the path; and the nature of the actual work to be done – task specificity. Reform ideas are almost 'edited' or 'translated' to fit path and task" (Pollitt et. al. 2004:18).

It should, however, be noted that the creation of agencies at 'arms length' from government departments was a major theme of the New Public Management (NPM) wave in public sector reforms of the 1980's and 1990's

and “although its effects are still working through in countries new to NPM, this wave has now largely stalled or been reversed in some key ‘leading edge’ countries. This ebbing chiefly reflects the accumulation of adverse indirect effect on citizen’s capacities for solving social problems because NPM has radically increased institutional and policy complexity” (Dunleavy et. al., 2005:467). The 2002 OECD report on ‘Distributed Public Governance: Agencies, Authorities and other Government Bodies’ is not concerned which how a particular organizational form spurs innovation and improves performance, but rather with how to ensure political accountability, unambiguous roles and responsibilities, policy consistency, and the public interest when highly political issues are left to autonomous experts in autonomous agencies.

Building on the work of Moore (1995) Bovaird argues that the limitations of NPM have been exposed as interest has grown in exploring “different types of value – no longer simply ‘value to users’ but also value to wider affected groups, social value (including improvements to social inclusion and social cohesion), environmental value and political value (including improvements to democratic processes) Bovaird (2005:218).”

The primary task of TIA is to support the State in stimulating and intensifying technological innovation in order to improve economic growth and the quality of life of all South Africans by developing and exploiting technological innovations. This primary task entails activity in the areas of both applied research and technological development and is an acknowledgement of the role of national policy in increasing the importance of and shaping public sector research in innovation systems, and in the development of research in the public interest (Laredo and Mustar, 2004).

The backdrop for the creation of TIA is what Laredo and Mustar highlight as three converging trends in public sector research: (1) technological missions dedicated technological competitiveness through collectively developing new competencies and building capabilities; (2) collaborative research to both encourage ‘pre-competitive’ research between competing companies and to

foster vertical cooperation between firms and their suppliers and customers; and (3) new interest in the innovative capabilities of SME's. This convergence "has underlined the increasing reliance now being placed upon frameworks other than those traditionally associated with science and technology policy. Thus fiscal policy, intellectual property rights and procurement policies have together helped foster favourable environments" (Laredo and Mustar, 2004:15). This paper foregrounds public governance issues that also play a role in fostering favourable environments for innovation.

For the purpose of this study innovation is defined as "...the economically successful introduction of a new technology or a new combination of existing technologies in order to create a drastic change in the value / price relationship offered to the customer and / or user" (De Meyer and Garg, 2005).

Although the constitutive elements of the principles of public governance vary from context to context, Bovaird makes the case that they are generally include substantial proportions of the following elements: democratic decision-making, citizen and stakeholder engagement, fair and honest treatment of citizens, sustainability and coherence of policies, willingness and capacity to work in partnership, transparency, accountability, social inclusion and equality (of opportunity, of use, of cost, of access or of outcomes), respect for diversity, respect for the rights of others, respect for the rule of law, and ability to compete in a global economy. "What is particularly important for public governance is that these principles are not only relevant for the way in which we assess how public agencies behave but also how NGOs and private companies behave – in other words, they apply also to the regulation of the private and NGO sectors" (Bovaird, 2005:220).

Issues raised in parliament's public hearings on the TIA Bill

The explanatory summary of the Technology Innovation Bill was published in the Government Gazette No 30164 of 17th August 2007 and version B 49-2007 of the Bill tabled in parliament on 8th November 2007. This version of the

Bill included as part of the powers and duties of the Agency amongst other the following:

- 1) The provision of financial and any other assistance to any person, *consortium or enterprise* for the purpose of enabling that person consortium or enterprise to develop any technological innovation or invention;
- 2) The establishment of a company for the purpose of developing or exploiting any technological innovation or invention *and to that end acquire such interest in and such control over such company as it may be necessary*;
- 3) The *provision of direction-setting capabilities*;
- 4) The *acquiring of any right in or to any technological innovation, invention or patent, from any person, consortium or enterprise, or assign any person, consortium or enterprise any right in or to any technological innovation or patent.*

[Note -- clauses in italics were deleted from subsequent versions of the bill].

Public hearing on the bill were held on 16th and 29th January 2008, the Department of Science and Technology made its response to the public submissions on 30th January and the Science and Technology Portfolio Committee deliberated on the response on 12th February 2008. According to the minutes of these hearing created by the Parliamentary Monitoring Group, stakeholders at these hearing were generally supportive of the objectives of the Bill and the creation of the new public entity, “however, all the stakeholders were chiefly concerned about the role and level of participation of government in private companies. This conflict of interest vested in the duality of the proposed enabling-and-competing nature of TIA”¹.

Some of the views expressed along these lines were that it was good for the State to be involved in the funding of innovation but not to the extent of taking equity in private companies; that such equity stakes would result in no value-add, differing mandates and unrealistic demands; that TIA should rather use

¹ <http://www.pmg.org.za/print/10048> and <http://www.pmg.org.za/print/10096> accessed on 03/09/2008.

soft loans, grants and non-diluting preference shares as investment vehicles; and that TIA should be a facilitative, benevolent agency instead of a competitive, commercial entity.

Ingley and Van der Walt (2004) argue that these conflicts of interest need to be understood from two perspectives – an economic perspective that focuses on agency costs and a stakeholder approach which focuses on issues of corporate governance. Agency problems arise because the relationships between principals and agents are characterized by different utility functions or pay-off structures (incentive conflicts) leading them to pursue contrasting objectives. The management of these conflicts is the responsibility of “corporate boards (that) should function as independent arbitrators among corporate constituents that have invested in the entity. Mechanisms to increase shareholder voice and loyalty can help the board function effectively and may increase both efficiency and fairness for all stakeholders, suggesting a more democratic system of corporate governance” (Ingley and Van der Walt, 2004:546). They argue that governance interactions need to be viewed from three different perspectives: agency, resource-based, and stewardship theory.

As a public entity, TIA will also be an arena for a wide range of conflicts of interest due to its operation “in a complex ecology of institutions, actors, values, beliefs, interests, cleavages, and powers that do not provide clear competencies, rules, objectives, or incentives” (Olsen, 2004: 74). As detailed by Olsen, the public officials in TIA will be faced with a complexity of expectations that include expectations that they will:

- Act as experts and the users of the best scientific knowledge available – an administration based on merit, professional competence, loyal to the principle of enlightened government – but avoid technocracy;
- Be cost-conscious managers governed by the principle of economic efficiency, adapting to changing circumstances and consumer demands, using markets and price mechanisms, without producing social inequality, exclusion and protest;

- Protect specific constituencies and the principle that affected parties should be heard, without giving privileges to strongly organized interest (Olsen, 2004:74).

The public officials in TIA will thus have to balance the competing standards of responsiveness/flexibility and continuity, innovation and accountability, and functional efficiency and democratic legitimacy.

DST's response to issues raised in the public hearings

The response of the Department of Science and Technology to these concerns was to diminish the level of participation and control TIA would have in private companies (as reflected in the changes to the powers and duties of TIA in the revised Bill); to include the requirement for the Board of TIA to prepare an Investment Framework Policy which would deal with criteria relating to investment instruments (e.g. licensing agreements, royalties, soft loans, equity shareholding, credit guarantees) and exit and handover strategies; to propose discussions with the National Treasury about the creation of a hybrid organization form (a mix of the PFMA schedule 3A and 3B) for TIA².

Because TIA was the consolidation of existing initiatives in government no additional budget was requested beyond the existent allocation in the Medium Term Expenditure Framework. This was deemed sufficient to achieve the goals of a conservative business plan. The type and structure of the budget that TIA will have once established will assist in classifying TIA for comparative purposes. Dunleavy (1991) distinguishes between delivery agencies (large core budgets), regulatory agencies (small core and bureau budgets), transfer agencies (small core budget and large bureau budget), and contracts agencies (modest core budget and large programme budget).

Perspectives of the Ministry of Science and Technology

In March 2008 when the Minister of Science & Technology, Mosibudi Mangena presented the TIA Bill to the national assembly for debate he stated

² <http://www.pmg.org.za/print/10083> accessed on 03/09/2008.

that "...all nations that have successfully made this connection – through entities like the proposed TIA - - have amassed immeasurable economic and social good. Pertinent examples include countries such as South Korea, Singapore and Taiwan. The governments of these countries created specific institutions to proactively co-ordinate and align national innovation missions and innovation support. Such institutions were typically set up to stimulate the creation of new industries and enterprises, and provide the basis for strengthening existing industries through the injection of new knowledge and technologies" (Ministry of Science & Technology, 2008).

The minister summarized the challenge facing the country in the following manner: "South Africa's innovation system has developed a substantial repository of local knowledge, but currently this has minimal influence on the real economy. This situation is exacerbated by a number of impediments to productivity and technological innovation, which include market inefficiencies; a lack of access to adequate financing (specifically for seed and first stage financing for technology development); as well as a relatively weak and uncoordinated intellectual property rights management framework." It is therefore intended that TIA will incorporate existing funding mechanisms such as the innovation fund and the biotechnology innovation centres and accelerate the commercialization of knowledge.

The purpose and tasks assigned to TIA

The purpose of Technology Innovation Agency Bill (Republic of South Africa, 2007) is to provide for the promotion of the development and exploitation in the public interest of discoveries, inventions, innovations and improvements; and for that purpose to establish the Technology Innovation Agency.

More specifically, the establishment of TIA is intended to enable the accomplishment of the following objectives:

1. Stimulate the development of technology-based products and services;
2. Provide an interface for and promote active collaboration between government, industry, academia, and international sources of foreign direct investment;

3. Actively managing the development of technologies to ensure success in the market;
4. Facilitate the development of human capital to drive innovation;
5. Connect technology entrepreneurs and enterprises to downstream funding opportunities and global markets; and
6. Increase South Africa's exports of value-added and finished goods (Ministry of Science & Technology, 2008).

The variety of these objectives is perhaps a legitimate cause for concern and at the least TIA will have to prioritize between these competing objectives.

Public interest theory of business regulation

The minister's remarks about market inefficiencies in South Africa being impediments to productivity and technological innovation and the public interest articulation of the purposes of TIA point to the need to interrogate the public interest theory of the regulation of business in conventional welfare economics. In conventional welfare economics the public interest is defined as the interests of individuals, promoted by free markets in which there is voluntary exchange of goods and services with no market distortions (externalities, natural monopolies, informational problems), rather than the interests of privilege groups. The assumptions and utility of such a public interest theory of business regulation has to be juxtaposed against other theories of business regulation, for instance principal-agent theories, transaction cost theories, theories of regulatory capture, and theories of the regulatory state.

Conclusion: The efficacy of public support for innovation

Rather than focusing on market distortions or market failures as their point of departure Martin and Scott (2000) take as their starting point the premise that reliance on market processes alone will result in underinvestment in research and development. They argue that "because governments typically have a poor record of identifying ultimately successful lines of technological development in advance, public support for innovating SME's should not take the form of direct grants. Nor should it take the form of government debt or direct equity financing. Rather government should limit its role to setting up

market infrastructure and creating an environment conducive to entrepreneurship. . . The question, then, is how to deliver additional public funding to provide sufficient investment funds in a risky environment without losing the monitoring ability of private venture capital firms and without trying to implement such monitoring without clumsy and costly contracts or administrative mechanisms” (Martin and Scott, 2000:440).

This question is at the heart of the governance considerations in structuring agencies to support innovation.

Martin and Scott contend that “with respect to the appropriate institutional framework for public support to investment in innovation, factors to be taken into account are:

- Whether innovation is incremental in nature or takes the form of discrete, fundamental breakthroughs;
- The extent to which patents or other mechanisms allow innovators to appropriate a sufficient share of the profits that result from successful innovation;
- The degree of product-market rivalry; and
- The importance of learning-by-doing” (Martin and Scott, 2000:445).

The gathering of sector-specific information that answers these questions and the setting up of efficient administrative/monitoring mechanisms are key challenges that will be faced by TIA and can be posited as critical success factors.

Addressing this issue from a different perspective, the OECD in a 2004 paper cautions against the creation of agencies. “Creating new agencies is a blunt instrument best used to build important new capabilities, rather than as a stimulus for management improvement. The proliferation of more or less autonomous arm’s-length public bodies makes collective action difficult. (OECD, 2004:4).

The final conceptual building block for the proposed study will be an examination of the possible regulatory ramifications of the functioning of TIA (James, 2000).

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