Can open government support innovation for inclusive development? A South African case study

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Abstract: The opening of government in a number of countries has implications for innovation processes and the potential for inclusive development outcomes. After unpacking key thinking around openness and its attendant values, we explore the adoption of open government practices in innovation by considering four instruments: the opening of innovation and technology policy processes, co-creation and collaborative solution development by civil servants, government entities acting as innovation brokers, and public sector procurement of innovation. Through a case study of South Africa, we highlight how innovation actors prioritise particular values of openness over others, oftentimes at the expense of legality and impartiality. This oversight leads to project failures, legitimacy crises and exploitation of openness by more powerful entities. In response, we suggest that public sector innovation programs and platforms can more explicitly recognise and balance different values through appropriate institutional forms and legislation, and thereby enable sustainable application of open government practices.

Keywords: innovation; open government; Popper; inclusive development; procurement; co-creation; South Africa.

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1 Introduction

Open government is viewed as both an enabler of innovation and a governance innovation in itself. At its core, open government draws on ideals associated with state transparency, access to government information, networked and cooperative governance, as well as responsive government (Reilly and Smith, 2014; Tkacz, 2012). In addition to enabling public sector accountability and promoting citizen engagement with policy and decision-making, narratives of open government increasingly highlight opportunities for public servants to collaborate with a broader community of external innovators to solve 'wicked' social problems (Hartley et al., 2013).

For example, empirical research on innovation in developing countries describes how public sector entities are adopting open innovation approaches (Feller et al., 2011) and leveraging 'social capabilities' to address local challenges (Habiyaremye et al., 2020). However, in innovation policy and planning the role of government continues to be ill-defined, partly because it is assumed that the state bureaucracy is not compatible with innovation practice (Mazzucato, 2013). Nonetheless, new evidence and conceptual models are emerging which provide a more nuanced picture of public policy in innovation system operation (Cooke, 2008; Hartley et al., 2013; Torfing, 2019), as well as how states establish legitimacy and capabilities for supporting innovation in different regional contexts (Drechsler and Karo, 2017; Feller et al., 2011).

When examining open innovation and cross-sector collaboration involving public actors, one of the common, and perhaps expected, observations is the clash of institutional 'logics' or values when 'risk averse' public officials engage with civil society or industry innovators (Torfing, 2019; Voltan and De Fuentes, 2016). As we develop a richer picture of state involvement in innovation it is critical that we go beyond simply calling for a change in public service 'culture' or values to better serve the interests of external innovation partners. Building on an emerging body of work, this article argues that the uncritical adoption of openness and private sector-like culture and management practices creates a risk that innovation processes and resources are captured by incumbent firms and individuals, leading to further exclusion (Singh and Gurumurthy, 2014). The basis for a more fundamentally inclusive innovation process depends on a deeper awareness of, and critical reflection on, why certain values exist or persist, and what institutional forms may assist with mediating these different logics (Grotenbreg and Altamirano, 2017; Hartley et al., 2013; Torfing, 2019; Voltan and De Fuentes, 2016).

To this end, we first review the broad trajectory of open government and its relationship to historical accounts of the open society and the values inherent in it, particularly in the writing of Karl Popper, and to notions of innovation globally. We then use a lens of administrative values to examine a case study of public management of innovation practices in South Africa including the formulation and implementation of policies, service co-creation, innovation brokering and innovation procurement. We

contribute new insights to a growing understanding of the state's role in open innovation and innovation for inclusive development (IID) by exploring key emerging mechanisms in the innovation policy and intermediary sub-system; highlighting how instantiations of these policy instruments are shaped by competing administrative values; and by describing institutional, policy and legislative responses for managing tensions between these values.

Throughout this paper we follow the broad conceptualisation of IID in South Africa's science, technology and innovation (STI) policy framework, as outlined in the draft IID strategy by the South African Department of Science and Innovation (DSI, 2016): "innovation that enables all sectors of society, to enjoy equality and equity in access to the knowledge infrastructure, participate in creating and actualizing innovation opportunities and enable individuals to share in the benefits of innovation to advance development goals." This definition adopts similar goals and values outlined in IID definitions adopted more broadly which emphasise wider participation in decision-making and shared benefits for stakeholders (Petersen and Kruss, 2019).

By exploring how a more dispersed perspective on interaction and outcomes underlying IID overlaps with the 'opening' of government we highlight how these activities lead to diverse and sometimes contradictory innovation practices and development outcomes. We also consider how IID policy actors and program managers can draw on open government, whilst recognising oftentimes competing values at play and embracing new meanings of openness, to achieve inclusive development outcomes.

2 Openness and open government as collaborative innovation

The resurgence of open government in the mid-2000s had strong connections to the internet and free and open-source software (FOSS) communities, sharing many of the same liberal democratic ideals of access, openness, participation and collaboration (Singh and Gurumurthy, 2014; Tkacz, 2012; Neylon, 2017). Tkacz (2012, p.390) suggests that during this period, neo-liberal agendas of "philosophy and economics are isomorphic with the ones that played out in computer cultures", effectively meaning that the open movement represented a dovetailing of the interests of politics, economics and technology. Indeed, one of the first key thinkers on openness was Karl Popper in the mid-20th century, and also one of the early proponents of neoliberalism together with Milton Freidman and Friedrich Hayek, amongst others.

For Popper, the notion of openness proffered the promise of a different kind of society, one that was less absolute and more democratic than the other forms of society arising out of earlier systems of governance. In two volumes, Popper critiques what he describes as a closed society, which he discerns as being marked out by Western canonical philosophy, and most notably, by Plato. Such societies are closed insofar as they subscribe to the notion that unchallengeable truths (mainly about the functioning and governance of society) exist, and society should work towards their revelation or assimilation, as in Plato's perfect forms. Yet, in these two volumes, Popper's articulation of what an open society is or aims towards is critically limited, aligned loosely to notions of liberty, justice and democracy. Indeed, as Tkazc (2012, p.400) notes, Popper's concept of the open is "reactionary; it gains meaning largely through a consideration of what it is *not*." Tkazc (2012, p.400) goes on to point out that "of the negative or *is not* qualities of the open, we can extract the following from Popper's critique of closed societies: open

societies do not condone historical or economic determinism; do not support programs of radical social engineering based on truth claims; and do not hold any truth to be absolute." However, neither Popper nor Tkazc quite explain the role of truth (or other prescribed societal values) in an open society. It is only later that Popper developed a more fervent position on this. While continuing to reject the authority of absolute truths and values, Popper (1962, p.175) later insisted that society must continue its *search for* such prescriptions, and posits disinterested and critical thought as a key value of the new open society, together with "individualism, equalitarianism, faith in reason and love of freedom."

Tkacz's critique of Popper could have been extended further. Writing in 1960, 15 years after Popper published his two volumes on the open society, Kendall (1960) wrote an article on 'The "open society" and its fallacies'. Kendall's (1960) assessment of the open society draws upon an idea expressed by the 19th century thinker John Stuart Mill who, in close similarity to Popper, wrote that freedom of speech should be the ultimate value of an open society. As with Popper, Mill took issue with the acceptance of absolute truths or singularly dominant values, decreeing instead that all ideas, doctrines and statements should be the subject of continuous public debate and scrutiny. Yet, Kendall (1960, p.974) points out that "when we elevate freedom of thought and speech to the position of society's highest good, it ceases to be merely freedom of thought and speech, and becomes – with respect to a great many important matters – the society's ultimate standard of order." Kendall's (1960) point is an important one about prioritising particular values of openness over others, a tension that we explore as emerging in the systems and outcomes of open government and IID below. However, what Kendall also points to here is that Mill, and subsequently Popper, in their total commitment to the open society in fact creates a new absolute truth: a truth of openness, or as Tkacz (2012, p.402) puts it "a precise truth of the open." This is broadly reflected in the way in which network technologies have supported a new, largely uncontested legitimacy for openness as a governance and development principle in both developed and developing countries (Reilly and Smith, 2014).

The more recent coupling of open government to the internet and FOSS has shifted attention towards more collaborative forms of public sector engagement and innovation enabled by modern information and communication technologies (ICTs) (Yu and Robinson, 2012). Whilst current work on open policies and platforms has increased the visibility of information and data, and yielded many innovation benefits, it is also contributing to the commodification of information. The result is an abstraction of the labour, incentives and underlying politics of information sharing, often obscuring or 'open washing' corporate and government accountability practices, all suggestive of the neoliberalist worldview to which Popper was committed to (Yu and Robinson, 2012; Singh and Gurumurthy, 2014; *European Journal of Cultural Studies* et al., 2020). A related interest in ICT-supported commodification of information, and ultimately, knowledge underlies broader economic perspectives on innovation and associated policy responses. The codification of knowledge in particular is argued to be a key enabler of commodification, allowing for the 'market exchange of intangible assets' including easier computer-based processing and transfer of knowledge, protection through intellectual property rights, and restrictions on access to code [Roberts, (2001), p.105]. As a result, the current prominence of ICT-enabled innovation in the open government and development discourse tends to encourage collaboration whilst reinforcing values of efficiency and effectiveness. This emphasis on collaboration, and arguably, conformity in

the name of (market-) efficiency suggests a move away from the centrality of freedom of speech in Kendall's assessment of the values of an open society.

similar interest in openness as multi-sector collaboration emerged amongst innovation scholars and practitioners, as highlighted by changes in one of the field's big ideas: the business-university-government (BUG) or 'triple helix' model of knowledge production. Starting out as an empirical tool for describing national or regional innovation dynamics, the triple helix has become a neo-institutional model for stimulating industrial innovation based on coordinated BUG interaction, largely through hybrid organisations such as technology transfer offices, innovation agencies and science parks (Kruss, 2008; Laranja et al., 2008; Leydesdorff, 2012). Government's role in the triple helix has been reinforced by influential research on the 'entrepreneurial' and 'developmental' state (Mazzucato, 2013; Block, 2008) which has encouraged the establishment of new government-funded innovation intermediaries and knowledge brokers. In part, this is an attempt to regain a form of 'steering at a distance' (Kickert, 1995) or control that has been lost since many states, such as post-apartheid South Africa, reduced their direct influence and funding of R&D in state owned enterprise-led military and industrial projects (Kahn, 2013). The nature of this role ranges between traditional, direct forms of innovation stimulation, such as R&D tax incentives and grant funding of university research, and more indirect facilitation of institutional learning and knowledge exchange, such as through cluster projects and online matching platforms.

The need to explain additional dynamics in innovation activities, and a desire to include more marginalised actors led to extensions of the helix metaphor. In developing countries, the notion of a quadruple helix has been especially attractive in defining a more inclusive model of innovation focused on the role of informal sector innovators, users or 'communities' as co-producers of solutions to social challenges. These non-traditional community actors became the C in BUG-C (Arnkil et al., 2010). In part, this is a practical response to address the specific needs and processes associated with the development of experience-based knowledge through 'doing, using and interacting', typical of small and micro-enterprises in emerging markets (Kraemer-Mbula et al., 2019), along with the incremental processes of organisational and innovation capability development in these firms (Peerally et al., 2019). It is also a strategic response by intermediaries located in marginalised areas, such as local universities: through their proximity and relatively close community relationships, these intermediaries are able to facilitate BUG-C innovation partnerships, and thereby access resources and recognition from governments and donors seeking inclusive development outcomes [Kruss, (2008), p.676].

To enable this supposedly more inclusive innovation model, government actors sought to become more open about how they prioritised development challenges and in seeking deeper interaction with non-governmental actors to address social issues. The role of public entities in these networked forms of innovation stimulation has tended towards the facilitation of connections and social capital, and enabling individual and organisational knowledge exchange (Lorenzen, 2007). Thus, governments' role in innovation activity has often been the creation and maintenance of, an often broadly defined, openness of information and interactions. Increasingly, however, there is evidence of more complex and hands-on relationships between government and other sectors related to the co-creation of public services, and as co-creation activities become more significant, the co-creation of policy [Torfing et al., (2019), pp.806–807]. This

highlights how various open government practices are interconnected and evolve from each other.

The interest in openness and collaboration from both open government and IID communities is closely linked to the popularity of multi-level and network governance as a 'joined-up' way of delivering social services, as well as to the continued adoption of various 'technologies of governance' associated with new public management (NPM) in the international development field (Kerr, 2008; Mladovsky, 2020). The values implicit in these forms of governance are often contested, leading to unanticipated outcomes (Davies, 2009). In particular, from an *innovation* governance perspective, the values of different actors vary widely; from their views of the different professions involved, to the identities constructed around similar technologies, and acceptable forms of government management of innovation activities (Askforsa and Fornstedt, 2018; McGahan et al., 2020). For example, the values associated with government's role may prioritise democratic representation, transparency, state sovereignty, public authority, legality and impartiality; or they may emphasise flexibility, efficiency and effectiveness (Grotenbreg and Altamirano, 2017).

On the one hand, the multiplicity of actors involved in defining the terms and practice of open innovation suggests that the ideas of Mill and Popper with regard to the centrality of debate, discussion, contestation and free speech in an emerging society are being realised. On the other hand, and rather more critically, the normative idea that multiple – and ideally, *all* social actors – should participate in bringing about openness, borders on what Michel Foucault names as neoliberalism's central tendency: governmentality. For Foucault (1982, 2008), governmentality is a practice of governing which may or may not be performed by the state. It involves the broad schema of ways in which individual and institutional behaviour is disciplined by society to be consistent with the rationality of the governing order. According to Noys (2012, p.8), what marks neoliberalism out as a new governmentality is its 'point of application'. Foucault (2008) writes of neoliberalism as a plurality of the state, for neoliberalism entails a method of governing which no longer requires the traditional state as such (hence neoliberalist calls for the retreat of the state). Neoliberal governmentality spreads out through every strata of the social machine, such that the dispersion of the practice of governing has only become more profound and totalised, and where multiple actors are called on to perform the central truth of, in this case, openness. Understanding and navigating interpretations of openness thus becomes critical, especially from an inclusive development perspective in which marginalised actors must come to insert, assert or partner with a plurality of governing forces (Fressoli et al., 2014; McFarlane, 2016).

3 A case study of IID and open government values in South Africa

3.1 Methodology

This paper uses the recent approval and publication of South Africa's new STI White Paper (DSI, 2019) as a policy window through which to explore the emerging relationship between open government and IID in this developing country.

We draw on methods used in critical historical accounts or genealogies of IID (Smith, 2013) and open government (Gray, 2014) to trace the diverse histories and lines of thinking which have led to – or are challenging – the current, contingent unity or stability

around 'what works'. Specifically, we conduct a content analysis of policy documents, project descriptions, government speeches, news articles, seminar reports, previous studies and online discussions concerning South Africa's open government and IID policy actors, and analyse this in relation to the theoretical exposition on the open society above. Our focus is on the period spanning the release of the DSI (2008) Ten-year Innovation Plan through to the publication of a new DSI STI White Paper in 2019 and more recent policy activity up to late 2020.

The starting point for this case study is the STI White Paper, which we analysed to identify key themes related to openness and inclusivity. From this thematic analysis, we identified seven categories of open instruments which are being considered to support IID. Using these categories, we then snowballed our document search, collection and thematic analysis to identify similar instruments being pursued by other state actors. Whilst this approach tends to bias the role of the DSI and the STI White Paper, the aim is to present a perspective on open government and IID from one of the key stakeholders in the national innovation system of a developing country.

The seven categories identified during the thematic analysis were grouped into two sets of related instruments making up separate 'sub-systems' supporting innovation activity (Cooke, 2008; Moodysson et al., 2017). The first set of instruments is analysed in an earlier paper (Plantinga and Adams, 2020) and is primarily concerned with the relationship between open government and IID as it is supported by a digitally-enabled *information and communication* sub-system: open data, open access publishing and open ICT platforms.

This paper focuses on the second set of instruments related to the *policy and intermediary* sub-system which the STI White Paper invokes as part of a renewed effort to stimulate impactful and inclusive innovation. Here, we focus attention on four emerging mechanisms of policy and mediation, and a specific form of sub-system specialisation (Moodysson et al., 2017), in which the state draws on open principles to encourage inclusive development outcomes. These mechanisms include open policymaking, open innovation brokering, co-creation of services and government procurement of innovation.

We have argued that values are central to the effectiveness and sustainability of public efforts to leverage and manage openness towards inclusive innovation and development outcomes. In the case study, we therefore critique the dominant values which underpin public sector innovation and development management, including the idea that openness represents the single truth of modern society, and is legitimised and justified a priori within society. We also comment on the implications of value contests for the sustainability of government's approach to IID policy and program implementation, and whether open instruments are likely to support inclusive development in South Africa.

As a conceptual tool, this approach to isolating and researching a sub-system of closely associated innovation instruments or activities is similar to that employed by Cooke (2008) and Moodysson et al. (2017) at a regional scale in considering, for example, the relationships between knowledge generation, exploitation and policy sub-systems. Similar thinking is employed at an organisational and inter-organisational scale by Peerally et al. (2019) in examining the development of innovation capabilities, such as the set of practices related to the more internal process and production organisation, or those related to developing linkages with the local community. By examining these sub-systems, and their linkages, we are able to develop rich contextual

pictures of intersecting regional and organisational approaches to innovation activation. In this paper, through the case study, we uncover forms of openness adopted as part of the policy and intermediary sub-system, underpinned by specific ensembles of open government or IID values.

Each of the following sections explores one of the four open government instruments introduced above, starting with a quote from the STI White Paper which highlights current DSI thinking in this area. We then examine the policy discourse in more detail, considering how stakeholders in other sectors (and sub-nationally) are engaging with the issue. By critically examining both the evolving discourse of policy language as well as how policy is described in specific innovation instruments or programs (Fairclough, 2013), we aim to surface the different values of stakeholders and where value contests or contradictions related to openness and IID have constrained or are likely to constrain policy implementation.

3.2 Openness and inclusion in innovation policy development and implementation

> "To respond to a changing world, policy approaches are introduced to ensure an open, responsive and diverse knowledge system. These include adopting an open science paradigm, supporting a diversity of knowledge fields, and a greater focus on inter- and transdisciplinary research and the contribution of the humanities and social sciences to addressing complex societal problems. The selection process of research focus areas will be institutionalised, and the focus areas will be aimed at opportunities to meet the [National Development Plan's] objectives." [DSI, (2019), p.12]

In seeking to respond to the above 'complex societal problems' and National Development Plan objectives, the STI White Paper anticipates embedding or institutionalising STI policy development and implementation more deeply in the internal planning processes of sector departments. New mechanisms include a ministerial structure on STI which will guide a 'whole-of-society innovation approach', supported by stronger engagement with National Treasury and the Department of Planning, Monitoring and Evaluation (DPME) "to facilitate the integration of the STI agenda and plans into government planning" [DSI, (2019), p.25]. This institutionalising of STI policy will be prioritised in three 'policy nexuses', including a nexus on 'social' outcomes, to address "social development and innovation for inclusive development" [DSI, (2019), p.26].

These actions, along with an explicit intent to involve civil society as a "link between the formal and informal parts of the [national system of innovation]" [DSI, (2019), p.24] and commitments to address racial and gender equality, form part of a broader policy intent aimed at improving the "coherence and inclusiveness of the [national system of innovation]" [DSI, (2019), p.22]. In a brief subsection focusing on 'building STI coherence' when 'values, information and competencies are shared', a call is made for upskilling officials on how to facilitate innovation and encouraging the movement of employees between government and other sectors [DSI, (2019), p.26].

Clearly, there is an assumption that inclusive development outcomes depend on a more open and collaborative STI system in which traditionally non-STI policy actors, and especially sector departments, play a stronger role in shaping research priorities *and* investing in STI activities through their treasury-guided budget allocations. This continues an earlier 'devolution' in resourcing of public-funded research to sector

departments [DSI, (2008), p.29; Maharajh et al., 2011], and broader interpretation of the national innovation system to more explicitly recognise the role of the business sector, customer and supplier relationships, and a wider diversity of service activities (Kaplan, 2008).

Many of these proposed interventions echo what was recommended and/or implemented in earlier policies, strategies and reports, such as the devolution of STI budgeting and establishment of an overarching STI council (Kaplan, 2008) or Manager's Forum outlined in the 2008 Ten-year Innovation Plan [DSI, (2008), p.29]. However, the STI White Paper – and exploratory work by the DSI – goes further. A recent study commissioned by the DSI has identified specific actions for enabling alignment between innovation policy and inclusive development with sector departments, such as by DSI supporting the now Department of Agriculture, Land Reform and Rural Development with the development of a program for the development and use of indigenous and local knowledge of farmers [Petersen and Kruss, (2019), p.365]. In addition, the STI White Paper recognises that there are gaps in competencies and values between government and other sectors which can be addressed by a more fluid exchange of people, but also by equipping public servants and challenging their 'risk-averse mindset' to enable them to take a more influential role in innovation practice and 'high-risk investments' [DSI, (2019), p.41]. Moreover, it calls for stronger engagement with civil society for making technology available for public benefit. In fact, the profile of civil society is raised to new levels in policy and planning: "To bolster innovation for inclusive development, the white paper introduces a significant policy shift in including civil society in STI planning at all levels, and devoting resources to supporting grassroots and other neglected innovators" [DSI, (2019), p.12].

Beyond what the DSI and STI White Paper address, when looking at inclusive innovation policy it is important to acknowledge wider technology-oriented policy processes that have sought to leverage open policy processes towards IID. Whilst the DSI's 2008 Ten-year Innovation Plan was conceived around carefully selected, relatively scientific grand challenges, a much broader plan for information society and development had simultaneously been promulgated by a Presidential National Commission (PNC on ISAD, 2007). The Information Society and Development Plan was centred on the use of ICTs, but sought to establish a diverse mix of multi-stakeholder committees, led by sector departments, aimed at establishing an 'inclusive information society' or 'advanced information society'. Its diverse goals included the 'universal design of ICTs' for people with disabilities to developing knowledge-intensive industries that can "give the country a competitive advantage over other nations" [PNC on ISAD, (2007), pp.37–44]. The plan was influential in the establishment of at least two provincial information society initiatives, which were closely linked to or enabling regional innovation system activities.

The Information Society and Development Plan's dual visions reflect an attempt to integrate values of inclusivity and technological progress by involving a large number and diversity of stakeholders in policy development, and as was hoped, implementation. The new STI White Paper appears to continue this path, taking into account some of the critique of technological determinism in previous science, innovation and information society strategies; such as recognising that technology policy is 'subordinate', or at least depends on, wider poverty reduction strategies, and that implementation will depend on intermediaries which are closer to communities (Moodley, 2005). Whilst the Information Society and Development Plan failed to meet expectations (Vecchiatto, 2008), a new Presidential Commission on the Fourth Industrial Revolution (PC4IR), hosted by the

Department of Communications and Digital Technologies (DCDT, 2020), has recently concluded its work. The PC4IR policy process sought to involve a more diverse mix of industry veterans, academics and youth leaders from different parts of the country in deliberations (South African Government, 2019). As with the STI White Paper, the PC4IR report seeks to achieve both economic competitiveness and societal wellbeing as the two primary goals, which includes an at least rhetorical recognition that "acceleration that, done without full consideration of inequality, can further the gap" [DCDT, (2020), p.17].

Whilst stakeholders digest the way forward on the recently published PC4IR report, the DCDT itself has been engaging with openness and IID as part of its existing policies on ICT and e-government, with explicit references to open governance, open government and associated instruments, such as open data (DCDT, 2016, 2017). The STI White Paper similarly makes a specific, although slightly incorrect, reference to South Africa's participation in the open government partnership (OGP) and its commitment to developing an "open data policy framework and action plan" [DSI, (2019), p.53]. The mention of OGP, which has formally been coordinated through the Department of Public Service and Administration (DPSA), is peripheral, probably due to a lack of political support and wider cabinet buy-in to OGP action (Razzano, 2016). Nonetheless, these references demonstrate a convergence of the broader STI policy community on openness, innovation and inclusive development as guiding principles.

It is not yet clear how the recommendations of the STI White Paper, PC4IR report, DCDT policies, future OGP commitments and related industrial and social policies will be implemented; and whether many of the envisaged, open institutional mechanisms will be established and leveraged to enable more inclusive development outcomes – or how they will navigate the different values at play. However, as demonstrated by the PNC on Information Society and Development process, a key lesson from previous attempts to mobilise multiple stakeholders around a wide-ranging transformation in policy and practice, is that it will require central policy *and* budgetary influence by working with National Treasury (which the STI White Paper appears to envisage). In parallel, however, at a lower policy level and on IID specifically, recommendations that the DSI identify targeted, joint policy or program actions with sector entities may have more immediate traction (Petersen and Kruss, 2019).

3.3 Government as open innovation broker

> "Increasing access to public science has the potential to make the entire research system more effective, participative and productive by reducing duplication and the costs of creating, transferring and re-using data. Fostering digitally enabled open and collaborative innovation is also key. The basic premise of open innovation is to make the innovation process accessible to all active players so that knowledge can circulate more freely." [DSI, (2019), p.16]

In line with a 'system' view of innovation processes, public policy actors and the STI White Paper identify the lack of inclusive knowledge exchange or 'circulation' as a key challenge for integrating marginalised individuals and organisations into innovation activities and economic development. As a result, a large amount of attention is directed towards (re)building linkages between various innovation actors in both public and private sectors, and to some extent, coordinating joint action.

During the late 2000s, there was a surge in government programs, including in Southern Africa, aimed at building new knowledge linkages and fostering collaborative innovation by connecting 'solution seekers', 'solution providers', investors and policy managers through innovation forums and platforms (Mohalajeng and Kroon, 2016). Government departments and state-owned enterprises have been both solution seekers on these open innovation platforms, as well as platform operators, usually through R&D units or government-owned innovation agencies which perform the role of innovation broker or intermediary. Whilst this brokering role may be regarded as relatively neutral and 'demand-led', most government-managed platforms look to balance at least two, potentially contradictory, objectives simultaneously: facilitating collective problem solving to address social challenges *as well as* stimulating local economic activity by connecting small enterprises with investors and corporate partners. In other parts of the world, the well-known small business innovation research program and its derivatives aim to achieve similar dual objectives in a number of countries (OECD, 2010). For example, the impact of the UK's National Health Service (NHS), small business innovation research-like health program is measured in terms of job creation, technology exports, private investment *as well as* benefits to patients and cost savings for the NHS (2018).

In South Africa, there are a number of formally established brokers in all spheres of government. Some have been deeply embedded in civil service operations as research or innovation units, such as in the City of Tshwane (CoT) (http://www.tshwane.gov.za/sites/Departments/CSOP/Pages/default.aspx). Others run as relatively independent entities associated with certain sector departments and outcomes; whether economic, as with the South African Small and Medium Enterprises Fund (SA SME Fund, https://sasmefund.co.za), or public service modernisation, as with the Centre for Public Service Innovation (CPSI, http://www.cpsi.co.za/). Broker objectives may be relatively implicit or explicit in seeking to solve a 'service delivery challenge' whilst also requiring that the technology be developed locally (TIA, 2020) and "creating opportunities for solution providers and entrepreneurs from the region" (OpenIX, 2018). As an example, between its launch in 2013 and early 2019, the OpenIX platform hosted over 80 innovation challenges, with approximately 70% of them oriented to addressing social or service delivery issues. However, as host of OpenIX, The Innovation Hub is looking to shift this balance to more private sector or commercial challenges, indicating a common tension between commercial viability and social impact (de Vries, 2019).

Beyond the work of formal government innovation intermediaries are various, less formal brokers facilitating access to decision-makers and promoting local innovations. Many of these individuals and organisations are (or work closely with) local politicians who have a strong interest in addressing social issues by accelerating the adoption of new ideas that can benefit their communities. Inevitably, this brokering activity blurs the public-private boundary, also highlighted in the previous section, which can lead government officials and politicians into awkward and volatile situations where they are perceived to be favouring specific products or innovators. This has been highlighted a number of times, such as at the peak of a major drought in 2018 in the Western Cape of South Africa, when the white premier of the province publicly recognised a water saving innovation by a white inventor – a highly contentious circumstance given South Africa's recent racialised history. This action generated a significant backlash on social media where the invention was viewed as a copy of a similar product developed by a black university student, Nkosinathi Nkomo (Ntsabo, 2018). The backlash has triggered a

broader, sustained conversation (on and off social media) about intellectual property and how young, Black innovators are treated by government officials and a largely white-managed private sector.

It is not only the technology brokering space that becomes contested. In designing new social policies or programs, members of parliament and public servants draw on ideas from a variety of sources, in many cases looking at the experiences of other countries. On major policy issues, an expert panel is often established to synthesise local and international evidence and make recommendations. In other cases, independent or government-based research intermediaries may support the policy process by facilitating access to research information. For example, the DPME (2014) is creating evidence maps for policy leads in a variety of sector departments. Evidence platforms are expanding globally and locally, such as the South African SDG Hub (2020) which promotes the use of research evidence *as well as* technology-oriented innovations for addressing specific goals.

However, as with technology innovations, the research and policy innovations coming from expert panels and evidence hubs are developed and disseminated in a political context (Hawkins and Parkhurst, 2015). Findings and recommendations related to land reform from the 'high level panel' assessing various areas of legislation have been debated widely during the lead up to South Africa's national and provincial government elections, as these findings were seen to conflict with the role and values of traditional authorities in certain regions (Niselow, 2018). These high level panels, which constitute a certain form of expert multi-stakeholderism, must ensure they do not reproduce the very exclusions that multi-stakeholderism seeks to address. So, developing mechanisms for the 'good governance' of evidence and technology brokering in political contexts, such as ensuring transparency and allowing for contestation by citizens (Hawkins and Parkhurst, 2015), will be significant for IID going forward.

3.4 Co-creation and collaborative solution development

> "The public sector needs to become an enabler of innovation for inclusive development. This can be done, for example, by strengthening ICT applications for e-government, e-learning and e-health, and can include co-creation and user-led initiatives using socially innovative methods such as living labs." [DSI, (2019), p.38]

Whilst much of the policy deliberation and brokering described in previous sections takes place at arms-length, groups of civil servants in South Africa have taken limited steps towards engaging with end-users or beneficiaries more directly in the design of new services. As suggested by then Minister at the DPSA: "A public sector that does not create platforms where the public and private sectors, with citizens co-create innovative solutions for our most pressing national challenges, will soon lose touch with its people, and succumb under the burden of growing backlogs" (South African Government, 2011).

More structured co-creation activity has taken place in a variety of contexts, from public health environments (University of Cape Town, 2015), to rural and lower-income areas (Coetzee et al., 2012) and metropolitan municipalities (Biljohn and Lues, 2020). In these scenarios, government actors seek to work closely with end-users, emerging entrepreneurs, non-profits and corporates in the design and build of innovations. However, there is also the lower-profile but more widespread incremental innovation activity of civil servants who are making daily adjustments and improvements in the

delivery of services to citizens, whether at a front-desk or through the design of a tender. These actions have been recognised and supported by entities such as the CPSI in South Africa. An emphasis on consultation and openness is reflected in the broader set of Batho Pele principles by which government officials are meant to operate when designing and providing services (DPSA, 2014). The many sites of consultation, from ward-level service provider forums to national multi-stakeholder committees, are also places of co-creation and innovation. In terms of the theoretical positions of Mill and Popper, these sites should function as vehicles for promoting contestation, deliberation and debate on key societal issues, and should, therefore, work toward the opening, rather than the closing, of society.

Centres and labs such as the CPSI have played a prominent role globally in calling on public servants (and public-funded researchers) to be more open to participation and ideas from outside their organisations. In particular, involving end-users in the design of new technologies or workflows is seen to bring in new ideas relevant to the local context and to facilitate a common understanding of challenges *and* shared responsibility for outcomes (Bason, 2010). South African researchers and government partners have adapted models used in Scandinavia, the UK and the USA to test a more user-centred design and co-creation approach. Many early projects were run through local living labs which coordinated joint work on innovations with/for local government and surrounding communities. The opportunity for learning and collaboration was expanded across an association of living labs through the Living Labs in South Africa (LLiSA) network. To a large extent, though, government's role has involved providing infrastructure or funding for living labs as an 'enabler' of the collaborative work that is being done in them, as a political sponsor within the region, and as a facilitator of knowledge sharing between labs through the LLiSA network, via the South African Council for Scientific and Industrial Research as network orchestrator (Coetzee et al., 2012).

More broadly, public and private actors are encouraged to explore novel ways of cooperation to address social problems, especially in relation to environmental and sustainability issues (WWF, 2018). New forms of collaboration and performance or outcomes-based contracting between government and non-government actors have emerged, typically supported by creative approaches to procurement, reviewed in a later section. Underpinning many of these models is a desire for closer interaction between civil servants and non-governmental actors to better understand problems, co-design solutions, and often, share the risks and rewards of project implementation. However, as suggested by the project reports, these collaborations require "a fundamental shift in mindset on the part of public agencies" [WWF, (2018), p.12] to trust and work with the outside parties they seek to engage with. This is echoed by the STI White Paper which suggests that "(t)he private sector only invests after government has made the initial high-risk investment. However, for government to play this role, it will need to develop a more innovation-enabling mindset and culture" [DSI, (2019), p.41]. The ultimate goal is to get better value for money, through a more agile project management approach, and by aligning the incentives of partners.

From the authors' own experiences working in this sector, the more difficult reality of co-design projects is that project partners are typically not prepared for the journey that is required to build mutual understanding and achieve acceptable outcomes. Many projects seek to include emerging local entrepreneurs or inventors, however, the co-design process requires that they spend a large amount of time in multiple rounds of pre-commercial interactions. In addition, for government supply chain officials involved

in a project, the more open-ended, iterative nature of a co-design process places significant technical and operational strain on their normal procedures and capabilities. This often leads to ambiguity around key issues such as ownership of intellectual property, definition of outcomes and how a final solution may be procured for scale-up. As a result, co-design processes can exhaust the tolerance of officials, the interest of end-users and the resources of emerging entrepreneurs (Sibanda, 2021).

On the other end of the spectrum, well-resourced firms have become notorious for exploiting their close relationship with government in South Africa's 'contract state' (Brunette et al., 2019). Through their access to decision-makers, larger engineering and consulting firms are able to consult closely with government entities on their needs, and then position themselves as exclusive providers of 'innovative' solutions to service delivery challenges. This has led to high profile failures, such as between McKinsey and Eskom, South Africa's state-owned power company in which an at-risk advisory contract was found to be illegal (Bogdanich and Forsythe, 2018). Unfortunately, these failures can close down the limited tolerance public (especially treasury and supply chain) officials have for exploring more sustainable and inclusive forms of public-private collaboration and co-creation around IID. This is also linked to what could be understood as technocratic approaches to openness and innovation – whereby only certain formal knowledge experts and 'high level panels' of recognised experts are involved in decision-making – which ultimately delimit possibilities for ensuring that both the process and outcomes of IID is inclusive.

3.5 Government procurement of innovation

> "Public procurement can also help ensure the sustainability of new and transformed broad-based black economic empowerment firms in or outside the existing supply chains of [state-owned enterprises], as well as increase the number of SMEs in these supply chains. Therefore, strategies will be developed to ensure that government is the first customer when it comes to using locally developed technologies." [DSI, (2019), p.34]

Whilst open and collaborative models for the public management of innovation have significant potential for realising more appropriate innovations for developing contexts, it is clear that these approaches need to be cognisant of institutions, politics and competing value systems (Lee, 2015). One of the key value contests concerns *public sector* procurement where values of predictability, transparency and competition dominate. This leads to a tension with the many stakeholders focusing on creativity and collaboration, and expecting supply chain management officials to 'shift their mindset' (Jackson, 2018). Therefore, a central feature of the IID good governance discussion should be on ensuring government procurement (and financing) of innovations from emerging entrepreneurs and established corporates is procedurally and legally sustainable, discussed below.

A key challenge to the sustainability of innovator-government relationships in South Africa is the desperate financial situation of most local inventors and small enterprises. Although the net of grant funding and mentoring support for technology start-up companies has been widened significantly, mainly through private and public enterprise development programs and innovation competitions, the bigger issue is that this support is not translating into new business or procurement opportunities (SeedAcademy, 2018).

Whilst procurement by the private sector and lack of early-stage venture funding in South Africa are major issues which need to be addressed (SeedAcademy, 2018; Jones and Mlambo, 2013), the focus of this section is on whether the opening of public sector procurement can support IID. As noted above, the STI White Paper explains how government will "(u)se public procurement as a vehicle to further innovation" and new industry development focusing on locally developed technologies, but also for enhancing the sustainability of emerging black-owned enterprises supplying state-owned enterprises [DSI, (2019), p.34]. Progress with the implementation of this policy intent is summarised in the now Department of Trade, Industry and Competition (DTIC) 2018/2019 Industrial Policy Action Plan for which the DSI and DTIC are leading the development of a strategy on the 'diffusion of locally developed technologies' focusing on a limited number of government users initially [DTIC, (2018), p.101].

Current procurement legislation and associated court judgments have limited the scope for procuring on functionality (Brunette et al., 2019) and thereby reduced the potential for creative alternatives for meeting government needs. Nonetheless, a small percentage of public entities have included a requirement for innovation in contracts (Kruss et al., 2018); and National Treasury, DSI, DTIC, state-owned enterprises and various innovation-related agencies are exploring international models for the procurement of innovation (e.g., OECD, 2017; Moñux and Uyarra, 2016; Georghiou et al., 2014; UNCITRAL, 2011). These models could support pre-contracting 'dialogue' between stakeholders on specific outcomes (Bolton, 2016) or broader, longer term signalling through mechanisms such as 'forward contract procurement' (BIS, 2011).

There is potential for existing procurement legislation and regulations to support a more explicit innovation requirement, alongside other 'horizontal' purposes, such as increasing the participation of majority black-owned businesses in public sector supply chains (Bolton, 2016). However, for supply chain management personnel, the addition of innovation criteria within the current, fragmented regulatory environment is likely to place further strain on overloaded processes. Yet, there may be an opportunity through broader procurement reforms being considered as part of the Draft Public Procurement Bill and the relatively new Office of the Chief Procurement Officer to develop more responsive legislation, strengthen oversight and enhance supply chain management support to enable more IID-oriented purchasing; alongside related objectives such as local procurement [DTIC, (2018), p.65]. As part of this process, it would be important to understand how officials are adapting existing procurement instruments to acquire innovations.

Most notorious among these instruments is single or sole source contracting, which usually involves a deviation from competitive bidding processes because government entities have an emergency need, changing suppliers is not cost-effective, *or because the product is unique and no reasonable substitute exists* (e.g., CoT, 2016). The procurement of innovations on single source is also often triggered by unsolicited bids. However, the criteria and process for justifying these deviations is, theoretically, onerous and should involve a public comment or formal request for qualification step (National Treasury, 2008). In addition, although the treasury practice note instructs institutions to protect information contained in unsolicited bids, entrepreneurs and lawyers often raise concerns about intellectual property being used by government without reimbursing the originator or leaking details to other firms (Cachalia, 2015).

A related instrument is the discretionary sponsorships and grant funding which are used to support specific projects, usually charities and events. The allocation of this

funding is typically governed by a municipal or provincial policy with clearly defined funding thresholds, possibly requiring council approval, but this approach is vulnerable to political change and legal challenges. For example, grant payments to a public WiFi initiative in the CoT (2018) were later found to be irregular by the auditor general and the contract was phased out.

As a way to avoid paying for an un-proven but potentially innovative product or service directly (and therefore having to run a tender), government entities have pursued public-private partnerships. These are a way for government to share the risk and rewards in testing technologies or methods with private partners. Public-private partnerships have been particularly attractive in trying out new cleantech innovations (Haynes, 2016). Ironically, however, the opening of government procurement to public-private partnerships has been affected by the reduced transparency inherent to a closer dialogue with private enterprises about government service delivery challenges, especially when intellectual property is involved, and because of the closed nature of business model negotiations. Public-private partnerships also raise concerns about whether it is the company's or the community's benefits which are being 'maximised' [WWF, (2018), p.60], even when part or all of the funding is being provided by external donors.

A similar, indirect way of investing into innovations is to open government assets or resources for use by private entrepreneurs or non-governmental organisations (NGOs) at no or low cost. As an example, providing access to under-utilised public land or property at low cost can stimulate innovative or entrepreneurial activity in an area. However, an innovation intended to include marginalised groups may be resisted, as highlighted by a debate around new proposals for low-cost housing in Cape Town where there is push-back from local residents who are opposed to these ideas (Kretzmann, 2019). Less tangible government resources are also being opened up to stimulate innovation, such as political endorsements, and increasingly now, public government data (Open Data South Africa, 2018). These actions are often regarded as 'free' and therefore outside of formal procurement regulations. However, as noted above, preferential support of any kind can trigger political and legitimacy crises which escalate quickly in an environment where race and connections are seen to, and often do, matter.

To address some of the issues associated with sole source, public-private partnerships and less formal support for innovation, a number of other procurement approaches have been explored which are connected to more structured and transparent processes. One option has been to run a standard tender process but use the initial functionality assessment to introduce minimum equity or innovation-oriented criteria. These criteria may include sub-contracting local suppliers, employing local community members or by inserting niche skills or services into the requirement, such as biomimicry, that would also (hopefully) force a larger firm to partner with innovative smaller firms (WWF, 2018). The City of Johannesburg's Jozi@Work program was a large-scale attempt to outsource aspects of municipal service delivery to local entrepreneurs and included an innovation incentive (CEO Magazine, 2015). However, in many contexts outsourcing is seen to impact job security for government staff which can affect the commitment to this kind of program.

A 'two-stage' bidding process is more widely recognised as a mechanism for supporting innovation-oriented procurement (National Treasury, 2005), and can be transparent whilst allowing for some flexibility around specifications. Stage one of the process, such as through a request for information, may involve relatively open interaction between entrepreneurs and government on needs and possible solutions. This

stage can also be used to pre-qualify participants for stage two based on 'technical and commercial clarifications' (National Treasury, 2005), allowing for a more functionality or outcomes-oriented approach to selecting preferred bidders. A two-stage process can also be applied to public-private partnership-like arrangements.

However, successful two-stage bidding depends on skilled supply-chain management practitioners and technically proficient end-users, which has led to public entities outsourcing parts of the specification and evaluation process, with associated risks to confidentiality and impartiality. These risks can be mitigated to some extent by involving internal or external independent actors (from government, academia and/or civil society) in a technical committee which oversees the specification, evaluation and selection of innovations, such as the Rand Water (2018) 'Innovation and Piloting Committee'. The technical support or brokering role may even be facilitated by a specialist government innovation intermediary, such as the OpenIX platform introduced earlier. In the ICT sector, the State Information Technology Agency is mandated to support procurement of a number of defined services for certain government entities, including certifying and registering a database of potential suppliers. As with the Gauteng Department of e-Government's Design and Validation Centre, there is potential for these technology gatekeepers to provide meaningful support on the technical (and, possibly with treasury, the process) aspects of innovation evaluation and adoption. However, the success with certain 'transversal' procurement mechanisms in reducing costs, especially in healthcare, has not be replicated by the State Information Technology Agency. Many years of issues related to State Information Technology Agency markups, delays, corruption and inflexibility have eroded faith in its procurement role (Moyo, 2019). It may be argued that there are various aspects of ICT procurement which make it less amenable to transversal procurement compared to highly regulated pharmaceuticals or medical devices.

In South Africa, innovation procurement is shaped by a mix of objectives and values which can lead to challenges with implementation and the sustainability of relationships. Reconciling contradictory interests – whether primary (e.g., acquiring materials or services), secondary (e.g., innovation or job creation), process (e.g., minimising transaction costs) or competition (e.g., transparency) – reflects a broader challenge in government procurement policy (Telgen et al., 2007). Nonetheless, as recent commentary on the Draft Procurement Bill has suggested (PARI, 2020), there is an opportunity to simultaneously improve flexibility and integrity. As an example, by moving the power to appoint bid committees away from the accounting officer to department heads, there is a stronger likelihood that subject-matter experts will be involved in the specification and evaluation process, whilst also making it difficult for a single official to be influenced on procurement decisions (and risk of corruption). In addition, functionality may be re-included as a final adjudication criterion to encourage the procurement of better-value offers, rather than the lowest cost option meeting a minimum technical requirement. Finally, the publication of more detailed procurement and contracting information, supported by a precise definition of confidentiality, would allow for public oversight, without leading to claims that personal privacy or intellectual property rights will be violated.

4 Discussion and conclusions

The current global and South African narrative suggests that open government is an important enabler of IID. This starts with facilitating more inclusive STI policy development, by making the process subordinate to the development needs of marginalised people and drawing on input from diverse sectors. At a lower level, public servants are seeking to co-design more relevant services through deeper engagement with creative local enterprises and end-users, or by brokering innovation partnerships for economic and social impact. The public procurement of innovation is a key enabler of these interactions.

However, through this snapshot of open government and IID we have demonstrated how competing values and visions lead people to act in different ways [see also Gray, (2014), p.4]. In our review of policy and practice, we see that open government's relationship to IID tends to be framed primarily around solving complex social problems and facilitating the uptake of innovations through deeper engagement between various stakeholders (to overcome the 'knowledge-action gap' highlighted in the STI White Paper). This thinking is anchored in values of effectiveness and flexibility which are achieved through more direct interactions between innovators, government officials and end users. In reality, we see a tension between these values and various other values associated with unique perspectives of the different individuals and professions involved, such as legal compliance and impartiality (Grotenbreg and Altamirano, 2017; Askforsa and Fornstedt, 2018). This tension manifests as project failures, cancelled contracts, and increasingly, social media crises. Moreover, given the political, economic and historical context of South Africa, we need to ask whether the adoption of open government instruments by public managers of innovation can create opportunities for marginalised actors to exert substantive policy or political influence to access resources and connections that can assist with getting innovations developed and implemented, and address the tendency towards an elite-centred technocracy. This requires, too, ensuring that publics are well-informed and empowered to participate in innovation activities, and that public servants overcome their lack of trust in what might be perceived as the inability of the public not to understand or know enough to participate in such activities and related policy-making. In this case, we may prioritise values of democratic representation and diversity over flexibility and effectiveness.

Going forward, a key challenge for STI White Paper implementation will be to understand how sector departments, subnational governments, civic activists, ward committees and local councils may interface to what has traditionally been a technology-oriented, nationally-driven innovation resource allocation and implementation. As the DSI and partners direct attention and funds to grassroots innovation involving micro-entrepreneurs, such as through community innovation competitions and local government procurement, the role of local actors and associated values becomes more significant. In these subnational networks, the apparently 'neutral' identities of innovation policies and programs will be recreated along a variety of contested political and economic lines. By recognising the potential for conflicting incentives and values, we may design more appropriate governance mechanisms for open government and innovation programs [Gray, (2014), p.4; Hawkins and Parkhurst, 2015; Grotenbreg and Altamirano, 2017). These programs (and platforms) can explicitly

identify and look to mediate and even coordinate (Hoppe, 2017) or "synthesise contradictory expressions of values" [Castells, (2004), p.92] by various actors, without producing a totalitarian and closed idea of what openness within innovation means. What exactly these institutional forms should look like depends on a number of contextual factors (Voltan and De Fuentes, 2016; Feller et al., 2011), and would benefit from further reflective practice and research. As highlighted in the case study, due to increasingly constrained public budgets for formal R&D support, especially in emerging economies, innovation department and agency strategies for engaging and aligning with sector department resource allocation will be critical. Where there is strong central planning and budget support for innovation, it may be possible to implement cross-department coordination platforms. However, it is likely that more targeted engagement on specific policy actions as outlined in Petersen and Kruss (2019) will be able to demonstrate tangible results for IID. In addition, there will also be a need to continue processes of clarifying and resourcing key enabling governance institutions, such as procurement regulators or offices, and developing clearly defined, enforceable legislation, particularly for achieving procurement flexibility and integrity (PARI, 2020).

At the same time, given the relatively significant role of the informal economy and smaller social and for-profit enterprises in developing countries and especially on the African continent (Kraemer-Mbula et al., 2019), additional attention needs to be paid to less formal networks of largely youth-led collaboration developing at the fringes of open government and open innovation programs. In these environments, network orchestrators are seeking to shape policy discussions (e.g., Geekulcha, 2019) and develop alternative mechanisms of resource allocation (e.g., The People's Fund, https://thepeople.co.za/). Emerging innovation networks have the potential to introduce new energy and ideas into the national innovation ecosystem and are already oriented to involving more marginalised individuals and communities whilst supporting engagement with government actors similar to other grassroots movements (Fressoli et al., 2014; McFarlane, 2016). These technology and entrepreneur-driven networks are, critically, cultivating new meanings and values of openness, and enabling alternative forms of interaction with the state and private sector. While this may lead to tensions with existing public procurement methods, intellectual property rules and private contractual arrangements, this ascribes more closely with Kendall's notion of the open society, founded on debate and contestation. Moreover, civil society networks would play a key oversight role in various areas, such as a reformed innovation procurement regime. Through these interactions and negotiation of values we may discover forms of development based on networked publicness between organised networks and the state, rather than defaulting to an individualised and commodified 'single truth' of openness which tends to be exploited by powerful actors (Singh and Gurumurthy, 2014). However, as with the FOSS movement, maintaining a 'recursive' [Kelty, (2008), p.141] or sustainable networked public requires continuous work to enrol technical, legal and pedagogical resources, but also to mediate values, within communities and in their interaction with an opening government.

References

Arnkil, R., Järvensivu, A., Koski, P. and Piirainen, T. (2010) *Exploring Quadruple Helix: Outlining User Oriented Innovation Models*, Työraportteja 85/2010 Working Papers, Tampereen yliopistopaino Oy Juvenes Print, Tampere, Finland.

Askforsa, Y. and Fornstedt, H. (2018) 'The clash of managerial and professional logics in public procurement: implications for innovation in the health-care sector', *Scandinavian Journal of Management*, Vol. 34, No. 1, pp.78–90.

Bason, C. (2010) *Leading Public Sector Innovation: Co-creating for a Better Society*, The Policy Press, Bristol.

Biljohn, M.I.M. and Lues, L. (2020) 'Citizen participation, social innovation, and the governance of local government service delivery: findings from South Africa', *International Journal of Public Administration*, Vol. 43, No. 3, pp.229–241.

Block, F. (2008) 'Swimming against the current: the rise of a hidden developmental state in the United States', *Politics and Society*, Vol. 36, No. 2, pp.169–206.

Bogdanich, W. and Forsythe, M. (2018) 'How McKinsey lost its way in south Africa', *New York Times*, 26 June [online] https://www.nytimes.com/2018/06/26/world/africa/mckinsey-south-africa-eskom.html (accessed 2 March 2021).

Bolton, P. (2016) 'Public procurement as a tool to drive innovation in South Africa', *Potchefstroom Economic Law Journal*, Vol. 19, No. 1, pp.1–35.

Brunette, R., Klaaren, J. and Nqaba, P. (2019) 'Reform in the contract state: Embedded directions in public procurement regulation in South Africa', *Development Southern Africa*, Vol. 36, No. 4, pp.537–554.

Cachalia, R. (2015) *Pitching to Government Uninvited: The Opportunities and Perils*, Caveat Legal [online] https://www.caveatlegal.com/pitching-to-government-uninvited-the-opportunities-and-perils/ (accessed 2 March 2021).

Castells, M. (2004) 'Space of flows, space of places: materials for a theory of urbanism in the information age', in Graham, S. (Ed.): *The Cybercities Reader*, Routledge, London.

CEO Magazine (2015) 'Re-stitching Johannesburg for the future', *CEO Magazine* [online] https://www.ceomag.co.za/142-cpcity-of-johannesburg (accessed 14 August 2019).

Coetzee, H., Du Toit, I.M. and Herselman, M. (2012) 'Living Labs in South Africa: an analysis based on five case studies', *The Electronic Journal for Virtual Organizations and Networks*, Vol. 14, pp.1–29.

Cooke, P. (2008) 'Regional innovation systems: origin of the species', *International Journal of Technological Learning, Innovation and Development*, Vol. 1, No. 3, pp.393–409.

CoT (2016) *Approval of the Reviewed Supply Chain Management Policy*, City of Tshwane, Pretoria [online] http://www.tshwane.gov.za/sites/Council/Council%20Resolutions/Council%20Resolutions%202016/Council%20Resolution%2030%20June%202016/12.%20Approval%20of%20the%20Reviewed%20Supply%20Chain%20Management%20Policy.pdf (accessed 2 March 2021).

CoT (2018) *Part I of the agenda of the 13th Council Meeting of the City of Tshwane Metropolitan Municipality*, City of Tshwane, Pretoria [online] http://www.tshwane.gov.za/sites/Council/Lists/Council%20Calendar/Attachments/50/04.%20Part%20I%20Council%2029%2003%202018.pdf (accessed 2 March 2021).

CoT, *City Strategy and Organisational Performance* [online] http://www.tshwane.gov.za/sites/Departments/CSOP/Pages/default.aspx (accessed 2 March 2021).

CPSI [online] http://www.cpsi.co.za/ (accessed 2 March 2021).

Davies, J.S. (2009) 'The limits of joined-up government: towards a political analysis', *Public Administration*, Vol. 87, No. 1, pp.80–96.

DCDT (2016) *National Integrated ICT Policy White Paper*, Department of Communications and Digital Technologies, Pretoria, Republic of South Africa.

DCDT (2017) *National E-government Strategy and Roadmap*, Department of Communications and Digital Technologies, Pretoria, Republic of South Africa.

DCDT (2020) *Report of the Presidential Commission on the 4th Industrial Revolution (PC4IR)*, Notice 591 of 2020, Department of Communications and Digital Technologies, Pretoria, Republic of South Africa.

de Vries, A. (2019) 'South African OpeniX programme – creating linkages between government, industry and research', Paper presented at the *IASP Africa Division Workshop*, Pretoria, 23–24 May [online] http://www.iaspafrica2019workshop.co.za/programme/ (accessed 3 June 2020).

Department for Business, Innovation & Skills (BIS) (2011) *Forward Commitment Procurement: Guidance on Buying Innovative Goods and Services*, Department for Business, Innovation & Skills, Government of the United Kingdom, London [online] https://www.gov.uk/government/publications/forward-commitment-procurement-guidance-on-buying-innovative-goods-and-services (accessed 2 March 2021).

DPME (2014) *Policy-relevant Evidence Maps: A Method to Inform Decision-making in the Public Sector*, Department of Planning, Monitoring and Evaluation, Pretoria, Republic of South Africa.

DPSA (2014) *The Batho Pele Vision – A Better Life for All South Africans by Putting People First*, Department of Public Service and Administration, Pretoria, Republic of South Africa.

Drechsler, W. and Karo, E. (2017) 'Confucian public administration and innovation policy: a conceptual perspective – Mencius, Max Weber and the Mandate of Heaven', Paper presented at the *3rd International Conference on Public Policy (ICPP3)*, Singapore, 28–30 June.

DSI (2008) *Ten-year Plan for Science and Technology*, Department of Science and Innovation, Pretoria, Republic of South Africa.

DSI (2016) *Draft IID Strategy*, Department of Science and Innovation, Pretoria, Republic of South Africa.

DSI (2019) *White Paper on Science, Technology and Innovation*, Department of Science and Innovation, Pretoria, Republic of South Africa.

DTIC (2018) *Industrial Policy Action Plan 2018/19–2020/21*, Department of Trade and Industry, Pretoria, Republic of South Africa.

European Journal of Cultural Studies, *European Journal of Women's Studies*, *Feminist Legal Studies*, *Feminist Theory* and *The Sociological Review* (2020) 'After open access: collaborative publishing for social and environmental justice', *The Sociological Review*, 15 July [online] https://www.thesociologicalreview.com/after-open-access-collaborative-publishing-for-social-and-environmental-justice/ (accessed 2 March 2021).

Fairclough, N. (2013) *Critical Discourse Analysis: The Critical Study of Language*, Routledge, New York and Oxon.

Feller, J., Finnegan, P. and Nilsson, O. (2011) 'Open innovation and public administration: transformational typologies and business model impacts', *European Journal of Information Systems*, Vol. 20, No. 3, pp.358–374.

Foucault, M. (1982) 'The subject and power', *Critical Inquiry*, Vol. 8, No. 4, pp.777–795.

Foucault, M. (2008) *The Birth of Biopolitics: Lectures at the Collège De France 1978–1979*, Springer, New York.

Fressoli, M., Arond, E., Abrol, D., Smith, A., Ely, A. and Dias, R. (2014) 'When grassroots innovation movements encounter mainstream institutions: implications for models of inclusive innovation', *Innovation and Development*, Vol. 4, No. 2, pp.277–292.

Geekulcha (2019) *#gkVacWork Tech Debate* [online] https://future.geekulcha.com/debate/ (accessed 13 December 2019).

Georghiou, L., Edler, J., Uyarra, E. and Yeow, J. (2014) 'Policy instruments for public procurement of innovation: choice, design and assessment', *Technological Forecasting and Social Change*, Vol. 86, pp.1–12.

Gray, J. (2014) 'Towards a genealogy of open data', Paper presented at the *European Consortium for Political Research (ECPR) General Conference 2014*, Glasgow, 3–6 September.

Grotenbreg, S. and Altamirano, M. (2017) 'Government facilitation of external initiatives: how Dutch water authorities cope with value dilemmas', *International Journal of Water Resources Development*, Vol. 35, No. 3, pp.465–490.

Habiyaremye, A., Kruss, G. and Booyens, I. (2020) 'Innovation for inclusive rural transformation: the role of the state', *Innovation and Development*, Vol. 10, No. 2, pp.155–168.

Hartley, J., Sørensen, E. and Torfing, J. (2013) 'Collaborative innovation: a viable alternative to market-competition and organizational entrepreneurship', *Public Administration Review*, Vol. 73, No. 6, pp.821–830.

Hawkins, B. and Parkhurst, J. (2015) 'The "good governance" of evidence in health policy', *Evidence and Policy: A Journal of Research, Debate and Practice*, Vol. 12, No. 4, pp.575–592.

Haynes, R. (2016) 'Renewable energy could light up PPPs', *Mail & Guardian*, 23 September [online] https://mg.co.za/article/2016-09-23-00-renewable-energy-could-light-up-ppps (accessed 2 March 2021).

Hoppe, M. (2017) 'New public organizing – towards collaborative innovation in the public sector', Paper presented at the *24th Nordic Academy of Management Conference*, *NFF-Track: Inter-organizational Collaboration for Innovation*, Bodø, 23–25 August [online] https://pdfs.semanticscholar.org/5e75/6974c8cc453f0e498921c6fd536f6d90abf9.pdf (accessed 2 March 2021).

Jackson, M. (2018) *What Westminster Can Learn from Local Government Procurement*, 18 January, CLES [online] https://cles.org.uk/news/what-westminster-can-learn-from-local-government-procurement/ (accessed 2 March 2021).

Jones, M. and Mlambo, C. (2013) 'Early-stage venture capital in South Africa: challenges and prospects', *South African Journal of Business Management*, Vol. 44, No. 4, pp.1–12.

Kahn, M.J. (2013) 'Rhetoric and change in innovation policy: the case of South Africa', *Science, Technology and Society*, Vol. 18, No. 2, pp.189–211.

Kaplan, D. (2008) 'Science and technology policy in South Africa: past performance and proposals for the future', *Science, Technology and Society*, Vol. 13, No. 1, pp.95–122.

Kelty, C.M. (2008) *Two Bits*, Duke University Press, Durham, North Carolina.

Kendall, W. (1960) 'The "open society" and its fallacies', *The American Political Science Review*, Vol. 54, No. 4, pp.927–979.

Kerr, R. (2008) 'International development and the new public management: projects and logframes as discursive technologies of governance', in Dar, S. and Cooke, B. (Eds.): *The New Development Management: Critiquing the Dual Modernization*, pp.91–110, Zed Books, London.

Kickert, W. (1995) 'Steering at a distance: a new paradigm of public governance in Dutch higher education', *Governance*, Vol. 8, No. 1, pp.135–157.

Kraemer-Mbula, E., Lorenz, E., Takala-Greenish, L., Jegede, O.O., Garba, T., Mutambala, M. and Esemu, T. (2019) 'Are African micro-and small enterprises misunderstood? Unpacking the relationship between work organisation, capability development and innovation', *International Journal of Technological Learning, Innovation and Development*, Vol. 11, No. 1, pp.1–30.

Kretzmann, S. (2019) *Radical New Housing Deal Proposed to Break Apartheid Barriers*, 20 March, GroundUp [online] https://www.groundup.org.za/article/radical-new-housing-deal-proposed-break-apartheid-barriers/ (accessed 2 March 2021).

Kruss, G. (2008) 'Balancing old and new organisational forms: changing dynamics of government, industry and university interaction in South Africa', *Technology Analysis & Strategic Management*, Vol. 20, No. 6, pp.667–682.

Kruss, G., Sithole, M., Moses, C. and Makelane, H. (2018) *Can Government Stimulate Innovation Through Public Funding and Procurement? What South African Manufacturing Firms Say*, Research Brief No. 1, CeSTII, HSRC.

Laranja, M., Uyarra, E. and Flanagan, K. (2008) 'Policies for science, technology and innovation: translating rationales into regional policies in a multi-level setting', *Research Policy*, Vol. 37, No. 5, pp.823–835.

Lee, P. (2015) 'Before the backlash, let's redefine user-centered design', *Stanford Social Innovation Review*, 26 August [online] https://ssir.org/articles/entry/before_the_backlash_lets_redefine_user_centered_design (accessed 2 March 2021).

Leydesdorff, L. (2012) 'The triple helix, quadruple helix, …, and an N-tuple of helices: explanatory models for analyzing the knowledge-based economy?', *Journal of the Knowledge Economy*, Vol. 3, No. 1, pp.25–35.

Lorenzen, M. (2007) 'Social capital and localized learning: proximity and place in technological and institutional dynamics', *Urban Studies*, Vol. 44, No. 4, pp.799–817.

Maharajh, R., Motala, E. and Scerri, M. (2011) 'South Africa: reforming higher education and transforming the national system of innovation', in Göransson, B. and Brundenius, C. (Eds.): *Universities in Transition*, pp.193–218, Springer, New York.

Mazzucato, M. (2013) *The Entrepreneurial State: Debunking Public vs Private Sector Myth*, Anthem Press, London.

McFarlane, C. (2016) 'Towards more inclusive smart cities? Digital fragments in the slum', in *Beware of Smart People! Redefining the Smart City Paradigm Towards Inclusive Urbanism: Proceedings of the 2015 "Beware of Smart People!" Symposium*, Berlin, pp.89–94.

McGahan, A.M., Bogers, M.L., Chesbrough, H. and Holgersson, M. (2020) 'Tackling societal challenges with open innovation', *California Management Review*, Vol. 63, No. 2, pp.49–61.

Mladovsky, P. (2020) 'Fragmentation by design: universal health coverage policies as governmentality in Senegal', *Social Science & Medicine*, Vol. 260, p.113153.

Mohalajeng, L.E. and Kroon, J. (2016) 'Innovation through accelerators: a case for open innovation', *South African Journal of Economic and Management Sciences*, Vol. 8, No. 1, pp.1–9.

Moñux, D. and Uyarra, E. (2016) *Spurring Innovation-led Growth in Latin America and the Caribbean Through Public Procurement*, Discussion Paper No. IDB-DP-488, Inter-American Development Bank.

Moodley, S. (2005) 'The promise of e-development? A critical assessment of the state ICT for poverty reduction disclosure in South Africa', *Perspectives on Global Development and Technology*, Vol. 4, No. 1, pp.1–25.

Moodysson, J., Trippl, M. and Zukauskaite, E. (2017) 'Policy learning and smart specialization: balancing policy change and continuity for new regional industrial paths', *Science and Public Policy*, Vol. 44, No. 3, pp.382–391.

Moyo, S.L. (2019) 'Examining leadership and mandates as critical success factors of e-government in South Africa', *Journal of Public Administration*, Vol. 54, No. 2, pp.184–206.

National Treasury (2005) *Supply Chain Management: A Guide for Accounting Officers of Municipalities and Municipal Entities*, National Treasury, Pretoria, Republic of South Africa [online] http://mfma.treasury.gov.za/MFMA/Guidelines/Guide%20for%20Municipal%20Accounting%20Officers_1.pdf (accessed 2 March 2021).

National Treasury (2008) *National Treasury Practice Note No 11 of 2008/2009*, National Treasury, Pretoria, Republic of South Africa [online] http://www.treasury.gov.za/divisions/ocpo/sc/PracticeNotes/Practice%20note%20SCM%2011%20of%202008_9.pdf (accessed 2 March 2021).

Neylon, C. (2017) 'Openness in scholarship: a return to core values?', in *Expanding Perspectives on Open Science: Communities, Cultures and Diversity in Concepts and Practices: Proceedings of the 21st International Conference on Electronic Publishing*, IOS Press, Amsterdam, pp.6–17.

NHS (2018) *SBRI Healthcare – The Impact and Opportunity Review*, NHS England [online] https://sbrihealthcare.co.uk/wp-content/uploads/2018/09/SBRI-Healthcare-impact-review-e.pdf (accessed 22 November 2020).

Niselow, T. (2018) *Motlanthe on Land Reform: MPs More Interested in Theatrics than Lawmaking*, 8 November, fin24 [online] https://www.fin24.com/Economy/motlanthe-on-land-reform-mps-more-interested-in-theatrics-than-lawmaking-20181108 (accessed 12 November 2020).

Noys, B. (2012) 'Forget neoliberalism? Baudrillard, Foucault, and the fate of political critique', *International Journal of Baudrillard Studies*, Vol. 9, No. 3 [online] https://baudrillardstudies.ubishops.ca/forget-neoliberalism-baudrillard-foucault-and-the-fate-of-political-critique/ (accessed 2 March 2021).

Ntsabo, M. (2018) 'Designer accused of stealing UCT student's greywater system refutes accusations', *The Daily Vox*, 13 February [online] https://www.thedailyvox.co.za/designer-accused-of-stealing-uct-students-greywater-system-refutes-accusations-mihlali-ntsabo/ (accessed 2 March 2021).

Open Data South Africa (2018) [online] https://opendataza.gitbook.io/toolkit/ (accessed 2 March 2021).

OpenIX (2018) [online] https://www.theinnovationhub.com/innovation-programmes/openix-5 (accessed 2 March 2021).

Organisation for Economic Co-operation and Development (OECD) (2010) *Public Procurement Programmes for Small Firms – SBIR-type Programmes*, OECD Innovation Policy Platform [online] http://www.oecd.org/innovation/policyplatform/48136807.pdf (accessed 12 December 2020).

Organisation for Economic Co-operation and Development (OECD) (2017) *Public Procurement for Innovation: Good Practices and Strategies*, OECD Public Governance Reviews [online] https://www.oecd.org/gov/public-procurement-for-innovation-9789264265820-en.htm (accessed 12 December 2020).

Peerally, J.A., De Fuentes, C. and Figueiredo, P.N. (2019) 'Inclusive innovation and the role of technological capability-building: the social business Grameen Danone Foods Limited in Bangladesh', *Long Range Planning*, Vol. 52, No. 6, p.101843.

Petersen, I.H. and Kruss, G. (2019) 'Promoting alignment between innovation policy and inclusive development in South Africa', *Development Southern Africa*, Vol. 36, No. 3, pp.351–375.

Plantinga, P. and Adams, R. (2020) 'Rethinking open government as innovation for inclusive development: open access, data and ICT in South Africa', *African Journal of Science, Technology, Innovation and Development* [online] https://doi.org/10.1080/20421338.2020.1746046.

PNC on ISAD (2007) *National Information Society and Development Plan*, Presidency, Pretoria, Republic of South Africa.

Popper, K. (1962) *The Open Society and its Enemies*, Routledge, London.

Public Affairs Research Institute (PARI) (2020) *Draft Public Procurement Bill [B-2020]: Submission of Public Comments*, PARI, Johannesburg [online] https://pari.org.za/submission-to-the-draft-public-procurement-bill/ (accessed 2 March 2021).

Rand Water (2018) *Rand Water 2018 Annual Report* [online] https://www.randwater.co.za/Annual%20Reports/Annual%20Reports/2017-2018%20Annual%20Report%20Final/RAND%20WATER%20ANNUAL%20REPORT%202018.pdf (accessed 2 March 2021).

Razzano, G. (2016) *Connecting the Dots: The Coordination Challenge for the Open Government Partnership in SA*, Open Democracy Advice Centre [online] https://www.makingallvoicescount.org/publication/connecting-dots-coordination-challenge-open-government-partnership/ (accessed 2 March 2021).

Reilly, K. and Smith, M. (2014) 'The emergence of open development in a network society', in Reilly, K. and Smith, M. (Eds.): *Open Development: Networked Innovations in International Development*, pp.15–50, MIT Press, Cambridge, MA.

Roberts, J. (2001) 'The drive to codify: implications for the knowledge-based economy', *Prometheus*, Vol. 19, No. 2, pp.99–116.

SA SME Fund [online] https://sasmefund.co.za/ (accessed 2 March 2021).

SeedAcademy (2018) *The Real State of Entrepreneurship Survey 2018* [online] https://www.seedengine.co.za/real-state-of-entrepreneurship/ (accessed 12 October 2020).

Sibanda, M. (2021) *Nuts & Bolts: Strengthening Africa's Innovation and Entrepreneurship Ecosystems*, Jonathan Ball Publishers, Cape Town.

Singh, P.J. and Gurumurthy, A. (2014) 'Establishing public-ness in the network: new moorings for development – a critique of the concepts of openness and open development', in Reilly, K. and Smith, M. (Eds.): *Open Development: Networked Innovations in International Development*, pp.173–196, MIT Press, Cambridge, MA.

Smith, A. (2013) *Method: Situating Pathways in Historical Contexts*, STEPS Centre [online] https://steps-centre.org/methods/cases/historical-contexts/ (accessed 2 March 2021).

South African Government (2011) *Speech by the Minister of Public Service and Administration, Mr Masenyani Richard Baloyi, at the Centre for Public Service Innovation (CPSI) Sponsors Dinner, at Michaelangelo Hotel*, 26 July [online] https://www.gov.za/speech-minister-public-service-and-administration-mr-masenyani-richard-baloyi-centre-public-service (accessed 12 December 2020).

South African Government (2019) *President Cyril Ramaphosa Appoints Commission on Fourth Industrial Revolution*, 9 April [online] https://www.gov.za/speeches/president-cyril-ramaphosa-appoints-commission-fourth-industrial-revolution-9-apr-2019-0000 (accessed 12 December 2020).

South African Sustainable Development Goals (SDG) Hub (2020) [online] http://sasdghub.org/ (accessed 2 March 2021).

Technology Innovation Agency (TIA) (2020) *TADF – Call for Expression of Interest* [online] https://www.tia.org.za/blog/2020/10/16/tadf-call-for-expression-of-interest/ (accessed 10 November 2020).

Telgen, J., Harland, C.M. and Knight, L.A. (2007) 'Public procurement in perspective', in Knight, L.A. et al. (Eds.): *Public Procurement: International Cases and Commentary*, pp.16–24, Routledge, Abingdon, UK.

The People's Fund [online] https://thepeople.co.za/ (accessed 2 March 2021).

Tkacz, N. (2012) 'From open source to open government: a critique of open politics', *Ephemera: Articles, Theory & Politics in Organization*, Vol. 12, No. 4, pp.386–405.

Torfing, J. (2019) 'Collaborative innovation in the public sector: the argument', *Public Management Review*, Vol. 21, No. 1, pp.1–11.

Torfing, J., Sørensen, E. and Røiseland, A. (2019) 'Transforming the public sector into an arena for co-creation: barriers, drivers, benefits, and ways forward', *Administration & Society*, Vol. 51, No. 5, pp.795–825.

United Nations Commission on International Trade Law (UNCITRAL) (2011) *UNCITRAL Model Law on Public Procurement*, UNCITRAL, Geneva [online] https://uncitral.un.org/en/texts/procurement/modellaw/public_procurement (accessed 2 March 2021).

University of Cape Town (2015) *Inclusive Healthcare Hackathon Uncovers Solutions to Health System Challenges*, 1 September, UCT Faculty of Health Sciences [online] http://www.health.uct.ac.za/news/inclusive-healthcare-hackathon-uncovers-solutions-health-system-challenges (accessed 2 March 2021).

Vecchiatto, P. (2008) *Presidential Commission Under Fire*, 17 June, ITWeb [online] https://www.itweb.co.za/content/nWJad7baJBPvbjO1 (accessed 12 December 2020).

Voltan, A. and De Fuentes, C. (2016) 'Managing multiple logics in partnerships for scaling social innovation', *European Journal of Innovation Management*, Vol. 19, No. 4, pp.446–467.

World Wide Fund for Nature (WWF) (2018) *Moving Towards Sustainable Performance-based Procurement in the Western Cape*, WWF, South Africa [online] https://www.wwf.org.za/oceans/?24701/Moving-towards-sustainable-performance-based-procurement-in-the-Western-Cape (accessed 2 March 2021).

Yu, H. and Robinson, D.G. (2012) 'The new ambiguity of "open government"', *UCLA Law Review Discourse*, Vol. 52, No. 11, pp.178–208.