

Chapter 14

What capacities and legitimacy can the state use to support South Africa's digital economy?

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1. Abstract

There is renewed interest among researchers and policy actors in more direct state involvement in the digital economy, with governments actively seeking to shape and co-create markets around emerging technologies and industries. However, one of the key questions is if the state has the necessary capacities and legitimacy to intervene more directly, whether through competition, industrial or other policy instruments. Focusing on South Africa, this chapter explores the mix of organisational and individual capacities and legitimacies that are available in the public sector to design appropriate policies and to achieve envisaged policy goals. From an analysis of four policy sub-systems – including data and algorithms, demand-side instruments for technology start-ups, digital governance coordination, and African integration – a diverse mix of traditional but also less visible actors, capacities and legitimacies emerges that could contribute significant expertise and resources to the realisation of digital economy goals.

2. Introduction

In its 2021 report on Competition in the Digital Economy, the South African Competition Commission (CCSA) noted that industrial policy instruments have an important role to play in enabling a more competitive and inclusive digital economy. Specifically, the report suggested direct government action on

“...data policies, fiscal incentives including tax breaks, investment and incentive schemes, supporting strategic sectors, public procurement, trade instruments (tariffs and duties), education and skills development as well as research and development.”
(CCSA, 2021:58)

Among these, the report argues that targeted interventions related to innovation and investment (financial and non-financial) seem to be the most necessary (and probably most

viable) options for the South African government to pursue. The primary goal outlined by the authors is to increase the number of small and medium-sized enterprises (SMEs) that can participate in domestic and international digital markets. In part, this is based on the experience of other developing countries where industrial policy investments for the information and communication technology (ICT) sector are “substantial and are not incidental” (CCSA, 2021:59).

This work by the CCSA points to renewed interest among South African researchers and policy actors in more direct state involvement in the digital economy. It also reflects a wider, growing body of research and advocacy around the role of an ‘entrepreneurial’ state in which governments actively seek to shape and co-create markets around emerging technologies and industries (The Presidency, 2019; Vilakazi, 2020; Mazzucato et al., 2021; Andreoni & Roberts, 2022). As a result, industrial policy and associated instruments are receiving more attention – even in the CCSA report, where we would normally expect the focus to be on relatively arms-length competition policy priorities and mechanisms, such as protecting consumer welfare and regulating firm behaviour.

Besides doubts about the benefit of increased state involvement in the digital economy (UNCTAD, 2018), this trend raises several other questions which require further discussion. One of these is the possibility that industrial policy objectives can operate against competition, such as by seeking to develop national monopolies (or champions) that can compete on a global scale but which result in higher prices for local consumers (Tirole, 2023). Another consideration is how to balance interests and facilitate coordination between an increasing number and diversity of state actors with overlapping digital goals and mandates, from personal data privacy to abuse of dominance (Kira et al., 2021). Finally, many researchers and policy stakeholders question whether the state has the necessary capacity and legitimacy to intervene more directly, whether through competition, industrial or other policy instruments (Barnes et al., 2019:26).

The final question is the focus of this chapter. A significant amount of research and writing has considered specific policy issues and mechanisms, including updating them to address emerging issues such as data privacy and artificial intelligence (AI) (e.g. Ezrachi & Stucke, 2017; Kira et al., 2021). And there is a growing body of work exploring the relationship between competition and industrial policy institutions (e.g. Andreoni & Roberts, 2022).

However, relatively little attention has been directed at the mix of organisational and individual capacities and legitimacies that are available in the public sector to design appropriate policies and to achieve envisaged policy goals. More attention in this area is critical for addressing both the perception and the reality of a weak state, typical of many developing countries such as South Africa (Pooe & Mohale, 2022), which is then not able to realise the recommended policy actions.

In response, this chapter explores the resources, legitimacy, skills and practices that public sector organisations and individuals enrol (or may look at enrolling) to support a vibrant digital economy (Karo & Kattel, 2016). An important starting point is to recognise the diversity of public entity forms, routines and civil servant roles that shape the adoption of emerging technologies (Van der Wal, 2017). This includes looking deeper inside and beyond the traditional ministries associated with ICT or the digital economy to identify where existing legitimacy and capacity could be beneficial. In this way, it is also possible to develop a more contextually anchored perspective on what exists and what could be expanded on or adapted for new scenarios.

The sections that follow aim to develop a richer picture of this organisational variety by exploring digital economy governance in South Africa. In the first section, a conceptual framework is developed through a review of existing literature. A key emphasis of the framework is on recognising the distinctive role played by different governance or policy subsystems in digital economy governance, and how these support the institutional learning necessary for responding to changing technology and social environments. The second section outlines the approach used for collecting and analysing data for the South Africa case study. Informed by the conceptual framework, the next section analyses four policy subsystems: digital governance coordination, Africa integration, demand-side innovation enablers, and data and algorithms. The final sections of the chapter synthesise and discuss the findings emerging from the case study, and outline the implications for policy and research going forward.

3. Organising for digital economy governance

For several decades researchers and consultants have explored the institutional models or arrangements by which information and communication technology (ICT) policy, the knowledge economy and the information society may be governed. This has involved

recognising the distinctive goals and character of these arrangements across different regions and administrations. For example, early e-government implementations in Australia and a group of other countries were led by national finance or treasury departments which focused on coordinating investment and funding; but in Singapore and another group of countries, leadership came from a ministry of ICT or science and was based on technical coordination (Hanna et al., 2009). At the same time, the state role and associated capacity may vary according to the sector in which the technology is being used. For example:

“For public services such as education and health, the key complementary factors are leadership, accountability, and governance within the sector and effective citizen demand and participation. The state must lead such alignment and invest in these complementary factors. For private sector-driven services, such as financial and business services, the important factors are regulation, competition, managerial capability, skilled work force, and industrial organisation, and here, the state plays enabling and facilitating roles.” (Hanna 2018:14)

Similarly, for digital economy research there is a need to develop a deep understanding of the distinctive characteristics of different digital and digitally-enabled value chains and the role of both international and local platforms in shaping associated economic activities. When looking at South Africa, the implications for (and governance of) fast fashion and advanced manufacturing are very different and would be very different in other African countries (Andreoni & Roberts, 2022).

Two persistent issues in this field have been how to develop and sustain necessary capacity and agility to respond to a fast-changing technology environment (Tirole, 2023) – such as by creating dedicated agencies or units that have flexibility in recruitment, remuneration and operation; and how to ensure these digital ‘vanguards’ have sufficient authority and legitimacy to lead change – such as through high-level political support. To enable agility, there has long been support for more decentralised (Hanna et al., 2009), experimental and adaptive approaches to public policy around the knowledge economy (Stiglitz, 1999) and specific technologies, such as robotics and AI. The emphasis here has been on using soft-law approaches to enable open policy learning, including through regulatory sandboxes and the iterative development of common law, among other instruments (Guihot et al., 2017).

Unfortunately, we have a relatively limited understanding of how digital economy governance, and adaptive governance in particular, takes place. In contrast, innovation scholars have developed rich insights into policy and institutional learning, mainly through their analysis of the national and regional ‘(sub)systems’ by which technology is developed, adopted and governed (Cooke, 2008). This field of research is useful for examining both intra- and inter-organisational learning, which are critical for the development of technology governance capabilities across a system. More recently, researchers have demonstrated how organisational variety in public administration is important for enabling innovation. From their analysis of cases in mostly Western countries, Karo and Kattel found that first, the mix of public organisations (and associated policy) is important for enabling different aspects or stages of innovation. This allows

“... some functions of innovation policy to be fulfilled in relative stability (e.g. basic research funding under peer review), but in other areas more experimental solutions could be sought (e.g. active industry participation in applied research prioritisation and evaluations)” (Karo & Kattel, 2016:26)

They go on to outline the distinctive capacities and legitimacy for public entities that support relative stability (efficiency, transparency, accountability) or more experimental approaches (learning, entrepreneurial).

The same is seen among public officials *within* state entities. Van der Wal argues that different values and capabilities are relevant at different stages of problem-solving and innovation (2017:146-147). For example, in the earlier stages of idea generation and selection, there needs to be more of an emphasis on (and associated capacity for) creative thinking and connecting ideas across boundaries. At later stages of the process, during testing and scaling up, there is a need for managers who can be pragmatic about assessing potential impact, enrolling political support and working with relevant processes or practices to enable embedding and adoption. Officials must inevitably navigate a range of formal and informal pressures from citizens, professional peers, their organisation and various elites (Joshi & McCluskey, 2018).

We therefore see a mix of individual, organisational and system influences on technology governance outcomes. But the available and most beneficial mix of organisations will vary

across contexts; and so we must consider the distinctive characteristics that shape the role of an entity in the local governance system (Karo & Kattel, 2016). For example, an innovation agency in one region may have very different capacity, legitimacy and routines – from recruitment to financial management and working with partners – to an innovation agency in another region, which will affect what each can do, how they interact with other organisations in the system, and their ultimate role.

An important complement to capacity is legitimacy, largely through the state's primary role as maker and keeper of rules. We should therefore recognise how legitimacy is derived, especially in high-tech sectors where there is likely to be scepticism about active government involvement. Legitimacy is shaped by a mix of external narratives, history, religion, culture and symbols, according to certain value frames (Nabatchi, 2018); but also, recursively, by the organisation and individual's ability to deliver on the expectations that have been created (Drechsler & Karo, 2017). We may expect legitimacy to be stronger where public entities can and/or have been able to enforce laws, have broad political support, have control over access to certain resources, possess unique or specialised skills, have a history of credible performance, or have been able to sustain a narrative around public interest and the (perceived) need for government intervention regarding certain technologies or innovations.

Ultimately, this discussion points to the importance of capacity and legitimacy as concepts for assessing whether states are a good 'fit' with the goals of technology governance. However, aside from some of the research noted above, there has been limited research and interest in the roots of these two terms and what they mean for digital outcomes. A potential reason for this is the association of digital governance with Western public administration traditions and an assumed set of goals and mechanisms, e.g. transparency, efficiency and merit-based recruitment, among others (Painter & Peters, 2010). Rather, there has long been recognition that there is a diversity of traditions; and while they are likely to share a nucleus of effective practice, there are principles and solutions that may work in one context and not another (Drechsler, 2015). This suggests our approach to designing digital economy governance has been superficial at best, and that we can find a better fit between the governance approach and the distinctive capacities and legitimacy which could be leveraged or developed in each context.

Using the above concepts, this chapter aims to develop a picture of the distinctive digital economy governance situation in South Africa. The following section outlines the approach used for identifying governance actors in this context and for analysing the associated capacities and legitimacy that are relevant to policy outcomes.

4. Identifying and analysing governance actors, capacities and legitimacy

One of the difficulties with analysing digital economy governance is that we have become accustomed to looking for the quite narrow path by which new innovations are developed and/or used, with associated assumptions about the types of entities and practices that make this possible. As a result, we usually try to describe the characteristics or process by which an agile ‘champion’ – be it an organisation or an individual, at lower or higher levels – identifies new technologies or policy methods and attempts to support their adoption within a ‘rigid’, ‘lethargic’ hierarchy. Our governance analysis therefore tends towards mapping the tensions between two conflicting groups and paradigms, and proposing strategies for navigating resistance between them.

In contrast, as introduced above, the innovation literature is more explicit about policy rationales, context and relationships associated with change pathways. We can therefore be sensitive to a more diverse set of potential actors, connections and processes by which digital governance may (or may not) take place. This includes being aware of:

- Organisational variety, mainly in helping to define a wider spectrum of potential governance roles and practices.
- Path dependence and smart specialisation which points to established routines and available resources that could be leveraged for policy action (or to resist change).
- Specific features of the technology that influence how people interact with and govern its development and use, and vice versa.
- The notion of subsystems is useful in defining tentative or porous boundaries around a specific policy area and set of actors, while recognising the possibility of intersection and interaction with other subsystems.

For this chapter, the data collection and analysis for the South Africa case study involved a series of steps that draw on this framing:

Identification of policy subsystems that can provide insights into the different governance actors shaping digital economy governance

The four subsystems in Figure 1 were selected as a case study group based on their relatively close association with a general theme of particular interest for current policy discussions: *stimulating innovation in data and AI*. This involves a mix of higher-level coordination within South Africa and with other African countries, the design of instruments such as demand-side tools aimed at stimulating the development of new ventures, and specific actions aimed at enabling data and AI innovation for public value and benefit. Each of these is likely to require different governance capabilities and legitimacy. When these subsystems are explored as a group, there is also an opportunity to consider inter-system connections.

Collection of information on government policy formulation and implementation

The information collection focused on content available in policy documents, media statements, and other research available on public websites; and only for material released in the past five years. Specifically, information was gathered on government digital policy capacities (e.g. experience and skills, enabling structures, financial or other resources) and legitimacy (e.g. through public narratives, law and perceived knowledge) which could be leveraged by different entities.

Analysis of governance roles, capacities and legitimacy

Focusing on documents and associated material, the analysis is based on a recognition that texts can help us understand some of the socio-technical reality of organisational environments. More significantly perhaps, texts contribute to processes of agency and organising (Fairclough, 2005), and such analysis allows us to explore some of the hegemony and operationalisation of discourses as enacted by certain individual or collective actors in processes of change. In this way, we are able to start understanding the contingent stability of digital economy governance around a certain arrangement of actors and priorities.

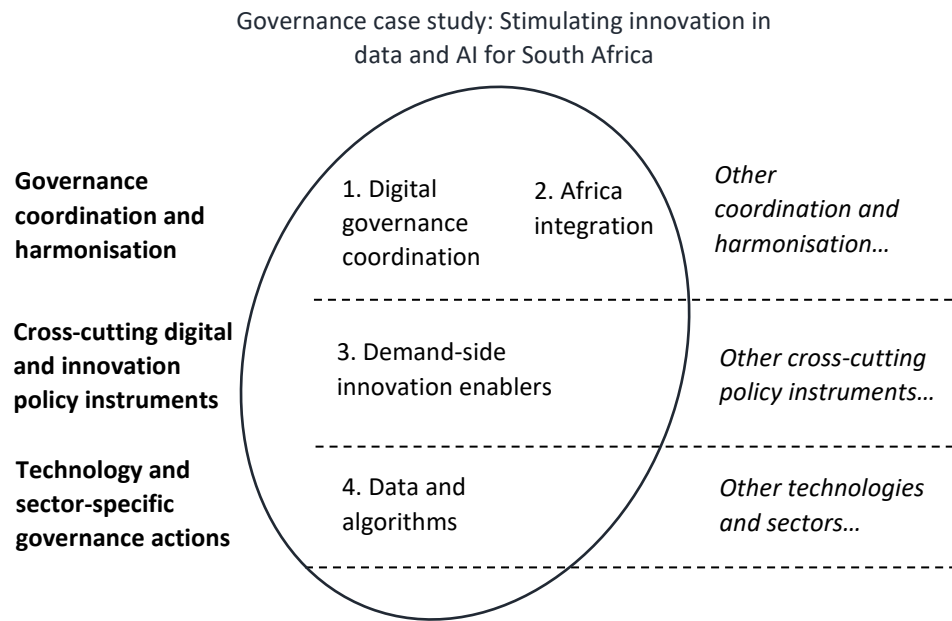


Figure 1: Layers of governance showing the four policy subsystems analysed as part of the South Africa case study

The next section presents the results of the data collection and analysis for the South Africa case study organised according to the four policy subsystems introduced above.

5. Capacity and legitimacy for digital economy governance in South Africa

1. Digital governance coordination

In South Africa, the evolving technology and policy landscape and differences in capacity and political will have led to overlapping interests and activities between at least three regulators. A widely documented example of this overlap concerned the high cost of mobile data for the increasing number of smartphone users: ultimately, following an inquiry into mobile data prices, the Competition Commission of South Africa (CCSA) instructed mobile operators to reduce their retail data costs. This followed years of inaction on this issue by the Independent Communications Authority of South Africa (ICASA), which has pleaded lack of capacity and has been seen as too conciliatory to (and captured by) both the operators and government. A proposal resulting from this situation goes as far as suggesting that ICASA be incorporated into the Competition Tribunal, which will “oblige it to adopt the analytical discipline necessary to regulate the sector effectively” (Sutherland, 2021:15).

Since then, the issue of overlapping interests – and varying capacity constraints – is playing out with respect to personal data protection, which is seen as simultaneously a competition issue, a consumer protection issue and a privacy issue. As a result, the CCSA highlights the importance of “strong cooperation and close dialogue” between itself, the Information Regulator, the National Consumer Commission and the Financial Sector Conduct Authority (CCSA, 2021:51). Meanwhile, the CCSA has moved on with its Online Intermediation Platforms Market Inquiry and most recently a Media and Digital Platforms Market Inquiry, both of which have implications for issues beyond competition. In fact, the Media and Digital Platforms Market Inquiry has specifically expanded its statement of issues – at the request of certain market participants – to go beyond simply looking at the sustainability of the media industry and address a “multiplicity of Rights” outlined in the Constitution of South Africa, including the right to equality, the right to privacy, the right to information (RTI) and the right to freedom of the press, among others (CCSA, 2023:4-5). From the above examples we see stakeholders inviting and encouraging the CCSA to take on a wider scope and even absorb other entities, based on its track record of delivering results. This is very different from encouraging inter-regulator cooperation.

Beyond regulation, the state has sought coordination between departments in the development of public infrastructure, services and skills. A key area for coordination was around e-government. Most e-government visions (including South Africa’s) promise a simplified, centralised way for residents to find and access services, usually through some kind of portal. In South Africa’s case such initiatives are expected to be led by the State Information Technology Agency (SITA) (DCDT, 2017). This requires extensive integration of systems and data flows, and several African countries are now seeking to replicate and reuse Estonia’s X-Road architecture, which has pioneered a flexible and open approach to data exchange (AORAI, 2023a).

However, the desire for coordination has also been framed in wider terms, towards realising an ‘information society’. In 2007, South Africa’s Presidency and then Department of Communications (DoC) sought to establish inter-governmental structures for accelerating digital technology adoption through an Information Society and Development (ISAD) Plan. e-Education and e-Health committees, among others, were to be chaired by sector departments and largely coordinated via a secretariat in the DoC. More recently, the 2019 Presidential Commission on the Fourth Industrial Revolution was a multi-stakeholder

initiative to chart a way forward with digital and related initiatives, and was also coordinated via the Presidency and Department of Communications and Digital Technologies (DCDT, 2019). In another policy document, the final ICT and Digital Economy Masterplan for South Africa proposes setting up a Project Management Office (PMO) in the Presidency that would work with a senior digital economy representative in every sector department to realise a “whole of government approach” (DCDT, 2021a). A key organisational capacity for all of these types of secretariats, and especially for leading public officials, is being able to mobilise and negotiate cooperation. There is also a significant dependence on legitimacy coming from central political actors – e.g. the Presidency – and through cabinet approval.

From a digital *innovation* perspective, the new Science Technology and Innovation (STI) Decadal Plan 2022-2032 by the Department of Science and Innovation (DSI) outlines an ambitious package of actions aimed at embedding innovation within the wider national government programme of action (DSI, 2022). Digital technology is prominent in many parts of this plan; in supporting “sector modernisation” across various industries, and through the development of “foundational capabilities” with wider societal impact (DSI, 2022:41). Ensuring digital and other technology innovations are enrolled into sector modernisation is expected to take place via a softer “compact” between departments, as well as harder guidance from National Treasury and the use of an “STI investment framework” to inform departmental budget allocations (DSI, 2022:101). Thus, support from National Treasury is central to enhancing DSI legitimacy, and facilitated via a high-level Interministerial Committee. The Plan also suggests a review of “collaborative STI instruments” to increase partnerships with industry, academia and civil society (DSI, 2022:95). Much of the DSI’s inter-governmental coordination approach echoes what is called for in other governance proposals. For example, a Department of Trade, Industry and Competition (DTIC) report on digital industrial policy calls for new budgetary models “so that resources are allocated around key policy priorities (and not around government institutions)” (IDTT, 2019:26). One lower-level approach to facilitating coordination outlined in the draft ICT and Digital Economy Masterplan is to enable the flow of data between entities. To some extent this involves setting up coordinating structures and systems with sufficient legitimacy and capacity, but much of the flow can be supported by entities independently adopting open practices, such as making non-confidential data public, providing APIs, improving data quality, enhancing the visibility of available data, and building capacity to use data (DCDT, 2021a).

Another coordination approach is to create or support ‘meso-level’ entities. These are usually quasi-public innovation agencies, hubs, special-purpose vehicles (SPVs) and industry associations working at the intersection of emerging industrial (or services) ecosystems. Such entities are often closer to industry needs, and can play a role in networking actors across fields or sectors, managing access to shared resources and funding, driving joint project execution, and institutionalising private sector inputs to policy decision-making in a more consistent and transparent way (TIPS, 2018; Andreoni & Anzolin 2020; DCDT, 2021a; IDTT, 2019). An example action for these entities is to facilitate business-to-business relationships around software development for simulation in the manufacturing and mining sector (Andreoni & Roberts, 2022). The capacity and legitimacy of these entities is anchored in the technical skills and business experience of the employees, but also in being open enough to recognise and mediate differences in power and values.

2. *Africa integration*

Returning to the CCSA report on Competition in the Digital Economy and the ICT and Digital Economy Masterplan, there is a clear recognition that there should be deeper integration with other African states on ICT activities. Part of this is simply increasing digital technology and services exports to other African countries (DCDT, 2021a:13). More complex is coordinating the development and enforcement of regulations on competition, data privacy, taxation and related issues towards a single digital market along the lines of the European Union (EU).

The CCSA identifies the African Continental Free Trade Area (AfCFTA) as a ‘springboard’ for cooperation towards supporting (digital) economic integration, and notes various points. First, there has been significant harmonisation around competition laws, but additional countries must still pass laws and regulations. Second, there is a need to establish strong enforcement institutions. Third is a role for the African Competition Forum (ACF) in ensuring and tracking the enforcement of competition laws across the continent and for capacity building. Fourth is finding a common regulatory approach to supporting the scale-up of start-ups across the continent. Fifth is the need for similar coordination in other policy areas such as consumer protection, data protection and data governance. And finally, there is a key role for sector-specific regional bodies such as the Southern African Development Community (SADC) Committee of Central Bank Governors (CCBG) in driving work around

fintech-related topics (CCSA, 2021:57). Given the leading role central banks have played in establishing regulatory sandboxes as an adaptive policy mechanism in their respective countries (AORAI, 2023b), it does seem that a financial sector entity such as the CCBG could have strong legitimacy and capacity for supporting innovation in digital economy policy-making at a regional level.

As to the other policy areas mentioned above – such as data protection, telecommunications regulation and STI – there are similar considerations and capacity needs. In 2008, the International Telecommunications Union (ITU) launched a programme to support development and harmonisation around several key pieces of telecommunications legislation across sub-Saharan Africa, specifically cybersecurity, cybercrime, electronic transactions and data protection (ITU, 2008). This programme and package of legislation has contributed to the formation of key institutions (such as data protection authorities) and regional cooperation on conventions and treaties (such as the African Union Convention on Cyber Security and Personal Data Protection) which are relevant to current issues (such as automated processing of personal information) (Plantinga et al., 2023). The new ITU Africa Region Initiatives 2023-2025 mainly aim to support regional cooperation in two areas: broadband connectivity and cybersecurity (ITU, 2023). The strengthening of links between countries in these fields will be critical for regional governance capacity, but may need to be expanded to other policy areas.

A key regional policy question, from both competition and privacy regulators, is how to manage the cross-border transfer, processing and hosting of data. As part of their personal data protection legislation, many countries suggest some kind of equivalence or adequacy assessment to determine if personal data can be safely exchanged with private or public entities in other countries (Bowmans, 2022). A closely connected practice in South Africa, and elsewhere, is to seek greater localisation of personal and other data in support of both privacy and economic objectives (DCDT, 2021a). Given the overlapping interests between various regulators noted above – such as the CCSA and the Information Regulator – on data privacy and localisation, there have been calls for South Africa to clarify the role of different domestic policy and regulatory actors in shaping the basis for regional trade (Sucker & Beyleveld, 2022).

From an industrial or infrastructure policy perspective, the primary area of integration – reinforced by the ITU in its new plan – has been around telecommunications (such as to enable roaming) and broadband connectivity. The Digital Transformation Strategy for Africa (AU, 2020) goes further in referring to a range of existing instruments and proposing new actions aimed at enhancing integration, from implementing “harmonised telecoms rules at the regional and continental level” (AU, 2020:13) to developing “common rules for consumer protection” in e-commerce (AU, 2020:27) and a “continental standard for the portability and accessibility of medical information” (AU, 2020:34). And perhaps it is in these relatively well-resourced sectors of e-commerce and health that we are likely to see the lead taken on cooperation. As discussed later in this chapter, in the health sciences, South African entities are managing an Africa-wide project on data infrastructure, which links to data science ethics and law (NIH, 2022). How South Africa works with other countries on this initiative, and with regional institutions such as the Africa Centres for Disease Control and Prevention, will be instructive.

3. *Demand-side instruments for enabling innovation*

A third area in which the state has extensive capacity and legitimacy is around procurement of services and products from external suppliers. The legitimacy arises through the size of the procurement budget which the state manages, and which has been increasing steadily as a percentage of GDP (to around 20%) over the past two decades (Brunette et al., 2019). In addition, legitimacy is derived by defining and enforcing the rules by which procurement takes place – most prominently via the Public Finance Management Act 1 of 1999 and the Municipal Finance Management Act 56 of 2003, but also through closely connected legislation on preferential procurement and black economic empowerment, among others. A significant portion of the government’s procurement budget is expended on digital goods and services, and the state is therefore in a strong position to influence industry development and innovation. One of the key areas in which the state has sought to use procurement to influence the digital industry is for the transformation of the racial and gender make-up of digital businesses, although it has not been able to achieve these objectives fully (Chimboza, 2023).

A second area in which the state is increasingly looking to use its procurement influence is to stimulate innovation and growth among emerging technology businesses. The main champion of this has been the DSI and one of its entities, the Technology Innovation Agency

(TIA), which has modelled its Technology Acquisition and Development Fund (TADF) on the internationally successful Small Business Innovation Research (SBIR) programme (TIA, 2021). The same idea, for the state to use pre-commercial procurement to stimulate innovation, is mentioned in the Competition Commission report noted earlier (CCSA, 2021). Entities such as TIA potentially provide the necessary technical capacity and legitimacy, in both technology and commerce, to mediate between the legality and predictability required of public procurement and the complexity and flexibility of early-stage technology development, testing and use.

In fact, technical intermediaries are important for supporting all forms of digital services procurement. In some cases, it may simply be to define a problem or requirements in a way that service providers are able to understand and respond to accurately. In other cases, it could be to design a public-private partnership (PPP) or to achieve wider social objectives. For example, a government department may require subcontracting to local suppliers for a large digital project, which is likely to involve complex structuring of deliverables and relationships.

In larger or complex projects, the state could look to expand public involvement by including civil society organisations (CSOs) in one or more stages of the procurement lifecycle. Most often, CSO inclusion is to support oversight of the award of tenders or delivery of services (Brunette et al., 2019). But involving civil society or other ‘independent’ entities in oversight would require governance openness and capabilities that many procurement units do not possess. Multilateral entities and programmes, such as the Open Government Partnership (OGP), coordinated locally through the Department of Public Service and Administration with various partners, could assist with capacity building in this area and provide examples of models used in other countries (OGP, 2024). The potential benefits associated with the procurement of innovation, and possible mechanisms, have been more openly acknowledged by National Treasury and could be explored under the wider changes associated with the Public Procurement Bill (PAN, 2023).

The procurement of innovation to stimulate new venture creation or growth, and to solve intractable challenges, is recognised as a key demand-side innovation instrument. But there are several others, with two mentioned in the DSI White Paper on Science, Technology and Innovation (STI) (DSI, 2019). One of these is a technology absorption extension service

which helps potential government and private-sector users identify and apply available technologies. Another is the R&D tax incentive which leverages the South African Revenue Service (SARS) capacity for efficiently administering these types of incentives. The incentive has recently been modified to clarify definitions and the scope of application (DSI, 2023).

There have also been proposals for (and tentative efforts to build) an online marketplace to link small enterprises with locally developed digital services (Barnes et al., 2019:25; Malinga, 2022). At the same time, the CCSA has used its authority to require that foreign companies support local enterprise development (Hartzenberg, 2007), which can be a further mechanism for stimulating local digital economy activity. And finally, the DTIC has accommodated alternative approaches to black economic empowerment for international digital corporations such as Microsoft by allowing them to invest in local digital entrepreneurs (Jones, 2011). These initiatives point to the wide spectrum of practices that are being adopted and adapted on a continuous basis in searching for new ways to support small enterprise growth.

4. *Data and algorithms*

A target of many of the above governance actions is data; and increasingly AI. As in other countries, data has become a central feature of South Africa's digital policy discourse. The list of interventions in the Draft National Policy on Data and Cloud spans a broad range of priorities, from the consolidation of (largely public) data at government data centre sites and local data banks, and protecting personal and confidential information, to supporting innovation by small enterprises around data assets (DCDT, 2021b). Whether these are desirable or achievable, even with optimal capacity and legitimacy, has been questioned. In part, this is because there appears to be fundamental ideological conflict between data and other policies, such as those on open science and human genetic data (Thaldar et al., 2023). The final version of the policy has sought to address many of the concerns raised by data stakeholders (DCDT, 2024).

Going forward, we are likely to see data policies customised for different sectors, and that in this process some of the proposed interventions could appear to be contradictory. For example, in their discussion on South Africa's digital economy policy, Andreoni and Roberts (2022) suggest that government may leverage the global exchange and aggregation of data on

fast fashion as a way to facilitate access to export markets, *but at the same time* enforce relatively strict rules on data localisation around certain health services to strengthen domestic platforms in this sector. The necessary nuance is only likely to emerge through intermediate steps of interaction and learning, as proposed for the country's genetic data governance (Thaldar et al., 2023).

Some sectors appear to have relatively strong public governance capabilities and legitimacy in shaping data innovation and use. The science community, and health sciences in particular, is supported by a network of well-resourced actors – from government and academia to international funders and consulting firms. The Draft National Open Science Policy is regarded as an important step forward for this sector, although it requires wider consultation. At the same time there has been extensive debate about the protection of personal information in the sharing of health-related data for research purposes and an associated protocol published by the Academy of Science of South Africa (Staunton et al., 2020). Finally, there are public and internationally funded research data infrastructures supporting research work at the continental scale, including the new programmes around data science ethics and law (NIH, 2022). So a large part of the state's – or rather, the collective public's – capacity is anchored in a wider institutional thickness involving multiple sectors and extending internationally, with various resource and knowledge links. At the same time, policy legitimacy is supported by the openness of discussion and debate typical of academic interaction.

Also close to the science community is spatial data governance, particularly in relation to environmental issues and land use. Collaboration between scientists and government departments led to the development of a South African Spatial Data Infrastructure (SASDI) which addressed many nuanced issues, from a shared metadata framework to data licensing (NGI, 2013). The Spatial Planning and Land Use Management Act 16 of 2013 (SPLUMA) provides a legal impetus for improved governance by requiring clear and accessible information for the public and private sector, and for the sharing of information between spheres of government. Statistics South Africa (Stats SA) has considered similar data-sharing questions and developed capacity around the management of administrative data pipelines (Stats SA, 2010) which leverages their existing capacity and legitimacy around statistical data management. More recently, together with SARS and the National Treasury, Stats SA have been sharing lessons on administrative data sharing (SA-TIED, 2023). Lessons and expertise

from these communities could be relevant to data governance in other sectors, both in establishing multi-sector collaboration and where legislation is seen to play a role. More generally, there is a critical need for supporting responsible data sharing by entities such as the South African Broadcasting Corporation (SABC), an entity under the DCDT, a request that has been repeated several times by the AI community (Marivate, 2020:12). It is unclear if an expanded Stats SA/SARS/National Treasury initiative would have the capacity and legitimacy to involve the DCDT, other sector departments and large data custodians such as the SABC.

Another sector in which the South African government has relatively strong legitimacy is around civil registration and identity verification, through the Department of Home Affairs. This is largely through their ability to maintain a central position and control over the identity space (Klaaren, 2023). By partnering with the private sector, the state has also been able to expand access to identity services. However, there have been major service provider contracting and operational challenges (Breckenridge, 2005), requiring intervention by private sector partners (Mungadze, 2022). Moreover, government's credibility as a custodian of sensitive information has been undermined by the (sometimes uncontrolled) reuse and commercialisation of personal data by private firms, as seen with social grant recipients (Torkelson, 2020). This affects the legitimacy of the state broadly with respect to data governance.

A key aspect of sustaining or (re-)establishing legitimacy is trustworthy data handling. Government may even look to position trust at the centre of digital economy development (Razzano et al., 2020). The United Kingdom has sought to do similar within the global community by establishing the AI Safety Institute and hosting the AI Safety Summit (DSIT, 2023). The growing activity around model, algorithm and AI governance – to build trust in these tools – can draw on established capabilities. The environmental sector has defined procedures and rules around how to conduct environmental impact assessments (EIAs), including selecting models for assessing air quality and ensuring wider stakeholder transparency (DEA, 2010). In a very different sector, banks in South Africa and across the continent have used models and developed risk management frameworks to manage the use of algorithms over several years (Deloitte, 2021; Richman et al., 2019).

However, building trust can be improved, such as by ensuring government entities themselves improve their compliance with the Protection of Personal Information Act (POPIA) (Ferreira, 2023). This highlights the need for relatively mundane administrative capacity to comply with legislation, which can also sustain trust more widely. Another under-recognised administrative need is to build capacity among procurement officials for the management of contracts with technology service providers and in PPPs (Brunette et al., 2019). This is critical for ensuring public entities and citizens are not locked out of their own data, and to ensure that private actors do not exploit sensitive data for unauthorised purposes (Torkelson, 2020). More broadly, a recently developed national framework aimed at the professionalisation of the public sector highlights the need for an integrated approach to capacity development, from individual skills programmes to nurturing a stable political-administrative interface (NSG, 2022:27). This provides a useful set of entry points across a spectrum of capacity (and legitimacy) elements that may be relevant to digital economy governance.

6. Discussion

Taking context seriously in digital economy governance means we need a better sense of how policy is developed and implemented in practice. Research from both the public administration and innovation fields has shown how the distinctive arrangement of public entities and people in a region may seem at odds with ‘proven’ models elsewhere, but is more appropriate and ‘good enough’ under the political constraints of the local context (Drechsler, 2015). More significant is understanding what the capacities, legitimacy and routines of different entities and individuals are, and how these may complement or conflict with each other in seeking to achieve agreed ends. This goes beyond a functional arrangement of different technical roles (e.g. financing, networking, research, infrastructure, policy formulation) to consider the capacities of different actors (e.g. entrepreneurial, administrative) and their legitimacy in different spaces.

As an analytical frame, grouping public activity and entities into layers of subsystems has proven to be helpful; in defining a boundary for study, but also by elevating our understanding of system characteristics *and* how subsystems may intersect or connect with each other. Using this frame to explore the South African approach to digital governance, we see an interesting mix of roles and dynamics that are shaping policy formulation and implementation. As one example, there is a clear difference in capacity and legitimacy

between a strong competition authority that has not traditionally been associated with digital governance, and a relatively weak technology regulator. The ongoing work of the competition authority in this area may point to a de facto political and administrative acceptance that digital economy issues may be less about technology and more about economics. There could also be other reasons and benefits in this arrangement; for example, multi-sector regulators are seen to reduce the risk of regulatory capture (Tirole, 2023). It therefore seems likely that competition authorities will be relevant to regional digital governance, such as for e-commerce, going forward – as will certain technology-leading sectors and associated entities such as central banks and the CCBG.

Critically, we cannot treat South African entities and officials in isolation from the global networks in which they are embedded and operate, and which facilitate technology and policy learning. It is therefore important to recognise the growing role of cross-border relationships, especially established or emerging ones with other African countries and regional institutions. A closely connected consideration (and area for future research) is the extent to which African states can (and do) individually and collectively shape their own destiny, given the historical connections with colonial structures and international development financing (Ohemeng & Foli, 2022).

In other areas, the roles, capacities and legitimacy of governance actors influence different dynamics. Industrial policy work by the DCDT, DSI and DTIC faces a significant challenge in attempting to mobilise interest from sector-departments and the private sector towards state objectives. The experience of the DCDT with coordination initiatives such as ISAD (and their success or lack of) would be relevant to how the DSI, DTIC, and future generations of DCDT officials establish legitimacy and capabilities for similar coordination efforts. The DSI's plan to enrol the authority of the National Treasury into mainstream innovation in departments may be a response to previous failures, but could underestimate internal power balances. Of course, National Treasury is also central to any ideas the DSI has around the procurement of innovation as a demand-side instrument for the digital sector.

There are other areas in which the capacity and legitimacy of the DCDT, DSI and DTIC are stronger or could be developed to support more organic forms of coordination, such as by supporting responsible data sharing by and between government entities. Partnering with the private sector can support the extension of state capacity, but there are well-documented

examples of how a lack of internal capacity for oversight leads to abuse – such as abuse of personal data – and very probably the credibility of government data governance broadly. In fact, a key capacity needing strengthening – and as a largely administrative capacity, relatively easy to address – is for government departments to comply with POPIA and thereby increase trust in data processing. Progress here could enhance the legitimacy of state entities in other areas of digital practice and policy, while contributing to the knowledge, trust and capacity of the wider ecosystem.

7. Conclusion

From a policy perspective, this chapter has highlighted various nuances for consideration when looking at how to approach digital economy governance. By better engaging with the less visible (or less formal) aspects of policymaking and implementation, there are likely to be opportunities for building more sustainable actions. Some of these may be relatively simple with wider system impacts, such as building capacity for and enforcing compliance with privacy regulations. Others can be more complex, such as in supporting public sector procurement of digital innovations. However, by identifying key actors and explicitly leveraging their distinctive capacities and legitimacies, it is more likely that such initiatives can realise the intended policy outcomes.

From a research perspective, the scope of this chapter is limited to a small selection of policy activities addressing innovation around data and AI in South Africa. An analysis of the much longer list of interventions available and possible for the state (see for example IDTT, 2019), as well as in-depth sector analyses, would provide a richer insight into the distinctive capabilities and legitimacy needed in digital economy governance. In addition, desktop research is not able to provide the deeper insights into organisational practices that would allow us to explore routines and relationships that are in use.

These findings are also limited to legislative and executive activity in the national sphere, and to what can be retrieved from formal policy documents. However, sub-national governments, especially cities, are important technology and policy innovators. And it is in the local sphere that the state has its most direct interaction with communities and traditional authorities on governance issues.

Finally, for scholars of public administration, there is a need to consider how different forms and traditions – from South Africa (Ntsebeza, 2004) to Morocco (Chafik & Drechsler, 2022) – influence the development and adoption of technology in public entities and across society. Looking deeper into bureaucratic functioning, we should also recognise that digital technology is implemented in public entities and used by public officials for enhancing their own capacity, and is likely to influence their approach to sector governance in a recursive way (Faraj & Pachidi, 2021).

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