

The Entrepreneurial South African State: An analysis of current government action to stimulate innovation and recommendations for future policy and initiatives

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Summary

Despite considerable effort from the South African government to drive innovation, the investments to date have not reaped the fruits expected by both government and the private sector. I believe that if we are to realise 'the new dawn' in economic growth and transformation the state needs to reorganise itself to be an 'entrepreneurial state'. This paper will proceed firstly by outlining current government action to support innovation, followed by a summary of the overarching recommendation to develop an entrepreneurial state. Finally it will outline in detail the current problems with government action to support innovation and how practical changes relating to the entrepreneurial state could address these.

Current government action to support innovation

When one analyses government investment and initiatives to facilitate private sector innovation, it is clear that South Africa has not been short of government action. When South Africa became a democratic country in 1994, the National System of Innovation was already in place and was adopted and further advanced by the post-apartheid government. This system of innovation was primarily characterised by the prioritisation of commercialisation of publicly funded research. However,

the new regime had a mandate to reform economic structures to address legacy issues, and therefore legacy programmes such as Support Programme for Industrial Innovation Programme, facilitated by the Department of Trade and Industry (DTI), redirected resources to create a more inclusive National System of Innovation. An innovation fund was created on the back of the White Paper on Science and Technology, from which the Intellectual Property Rights and Publicly Funded Research and Development Act (IPR Act) was born in 2008. The next 10 years of South Africa's National Systems of Innovation witnessed numerous initiatives namely; maturing of the Innovation Fund, an R&D Strategy

for commercialisation of publicly funded R&D, an IPR framework, and an Innovation plan from Department of Science and Technology (DST). Last year marked the 10th year since the IPR Act and unfortunately the outcomes have been disappointing, with a low conversion rate of publicly funded research to commercialisation and a decline of private sector R&D spend. Clearly government action has not been effective in stimulating private sector R&D and innovation.

Primary recommendation: An ‘entrepreneurial state’

A potential reason for the lack of impact of the above identified government initiatives are the countervailing inefficient or obstructive government action which may have depressed private sectors innovation investment and participation. In particular, an unfortunate mindset which has dominated government thinking on innovation is the ideological assumption that the state is merely an ‘enabler’ of innovation or a market fixer, rather than being an engine of innovation itself. This approach results in an arms-length relationship with innovation and the private sector, where the state primarily provides finance. This paper recommends that the state should become more directly involved in innovation and ‘wear an entrepreneurial hat’ in the matters of innovation investment, developing a close working relationship between the government and private sector, working together to build the economy.

This idea of an ‘entrepreneurial state’ originates with Mariano Mazzucato, and requires the state to embrace a different way of working and mindset, in particular:

- A greater acceptance of risk and failure: Entrepreneurship is synonymous with uncertainty and therefore risk, therefore failures need to be accepted and learnt from rather than avoided
 - *Cumulative, failures become learnings, the state will need to be patient whilst innovators accumulate new capabilities through failures*
- Collaboration and collection action: The government and private sector can no longer work in silos but both parties need to invest in developing a strong and close working relationship where both are working together towards shared goals, and a sharing of risks and rewards

In the section below I will provide a detailed outline of current government action which is impeding innovation progress and highlight how switching to an entrepreneurial state mindset could overcome these existing challenges.

Problems with current government action and initiatives

Firstly, I will highlight the obstructing policies or the inefficient behaviour of government that inhibits funding for innovation, and explain the current situation and lastly suggest policy or government action which might be more effective in supporting innovation.

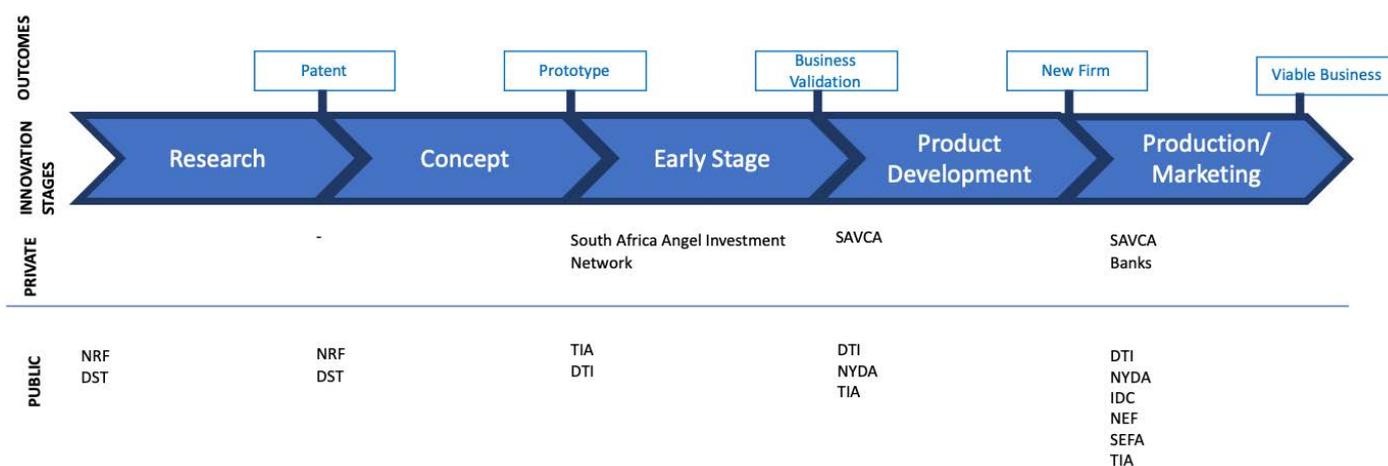
1. There is a lack of funding available to firms at the research, concept and early stage part of the innovation value chain

Given the high risk nature of innovation at the early stage there is limited funding made available from the private sector at these stages of development – this is a clear gap that can be best filled by the state. Although there are two agencies (depicted in Figure 1) at the research to early stage phases, it is by no means an indication of the amount of government funding available. When considering the National Research Foundation (NRF) their charter states, “The mandate of the NRF is to support and promote research through funding, human resource development and the provision of the necessary research facilities in order to facilitate the creation of knowledge, innovation and development in all fields of science and technology including indigenous knowledge and thereby to contribute to the improvement of the quality of life of all the people of the Republic.” NRF’s mandate is clear, however not comprehensive, when you search further in their website, one learns that they only provide funding to students at national learning institutions. Alongside the grantee requirements from the National Research Foundation (NRF) and Department of Science and Technology (DST) is limited to students at a post graduate level. The mandate of NRF excludes, inventors not in formal education. Therefore firms are excluded from access public government funding through the NRF.

South Africa’s ten year innovation plan recommended the establishment of the Technology Innovation Agency (TIA) to fulfil the gap of collaboration between private sector and public research entities and connect the public knowledge to the economic activity. The National Youth Development Agency (NYDA) was established to support young persons under the age of 35, with their entrepreneurial venture. The government also established other agencies such as the Industrial Development

Corporation (IDC), National Empowerment Fund (NEF) and Small Enterprise Finance Agency primarily focus on established businesses, that have formed a new form and are a viable business. These are the agencies established by government to supporting funding across the innovation value chain, but when studying further, one learns that most of these agencies focus on funding at the product development and production marketing phase.

Figure 1: Finance along entire innovation chain in South Africa



Source: Penna and Mazzacato and DTI (2019)

An entrepreneurial mindset by the government will require it to invest along the entire innovation chain. When looking at the South African Landscape (figure 1), it is evident that from the research phase to product development, government agencies are limited and private sector funding is non-existent.

Given the above analysis, our recommendation is government expands the mandates of the existing agencies to also support the early stages of the innovation value chain, for both small and large firms. This will address the limited finance available for research, concept and early stage of the innovation chain for the private sector. The priorities for investment should be driven by the insights gathered by post early stage funding agencies such as TIA, IDC, NEF, and SEFA, as they have front row seat to the types of projects private sector is seeking funding for. As opposed to establishing another agency, instil referral processes and working groups that will force the agencies to work together and provide funding for the early phases of the innovation value chain.

2. The priority focus areas of the funding agencies are not clear and some overlap each other

When looking for information on the websites of NEF and IDC, their funding priorities lack clarity and their mission is vague. If a black-owned firm is looking to extract minerals, which financier must the firm approach at product development phase (clarity)? Is it necessary that a firm needs to knock on multiple government funding agency doors (overlap)?

“The NEF is a driver and thought leader in promoting and facilitating black economic participation by providing financial and non-financial support to black empowered businesses, and promoting a culture of savings and investment among black people.”

Extract from DTI-NEF (2019)

IDC: “Established in 1940, we are a national development finance institution set up to promote economic growth and industrial development. We are owned by the South African government under the supervision of the Economic Development Department.”

Extract from IDC (2019)

The state needs to create a decentralised network of mission oriented agencies, which means the promotion of each agency acting on its own clearly defined mission. The key components of Apple’s best-selling products such as the iPad and iPhone were initially funded by various public institutions (Internet by the Defence Activated Research Projects Agency, Global positioning system by the US Navy, Central Intelligence Agency, National Institution of Health) which created new markets of smart phones and tablets. These funding agencies have demonstrated the power of being mission driven, which had spill overs of creating the tablet and smart phone market. A good example of a mission driven public funder is the DST as per their website for their Technology Innovation Programme “The Programme aims to enable research and development (R&D) in strategic and emerging focus areas (space science, energy, biotechnology, nanotechnology, robotics, photonics, and indigenous knowledge systems) intellectual property management, technology transfer and technology commercialisation in order to promote the realisation of commercial products, processes and services from R&D outputs through the implementation of enabling policy instruments.” DST (2019)

Given the above analysis, the recommendation is that each public funding agency develops a mission by firstly identifying an area of growth and clearly indicating their mission and priority areas of investment, which will avoid the current overlap across the agencies and confusion firms experience, when seeking innovation funding from government.

3. The available government funding is too risk averse, for example if you have not secured a contract from a customer, you do not qualify.

The economic decline makes it difficult for a firm to secure contracts from customers, as buyers are not making bold commitments given the economic

uncertainty. Also the sluggish economic growth that South Africa has experienced for the past five years, with the effects of rising taxes, fuel costs and other bills has forced businesses to decrease their spend on innovation activities. Therefore obtaining funding even production development phase is proving to be difficult. However, these structural economic challenges present an opportunity for the state to be mission oriented.

During South Africa’s recent (technical) recession, government has been focused on the improving the regulatory burden with Companies and Intellectual Property Commission, South African Revenue Services and other government company registration agencies making it easier to invest in South Africa by creating a one-stop-shop. Other efforts have been made to update legislation to improve support for small businesses. However, these efforts support the institutional capacity at the middle of the innovation value chain and not necessarily the firms innovation activities. It therefore recommended that investment from government during the recession is to focus on supporting firms innovation value chain activities namely; research, concept and early stage as well. The state needs to play a role in taking risk across the business cycle in times of decline and high growth. The United States of America has been key at investing in innovation during times of recessions in order to avoid depressions. Mission oriented states have also been active innovation investors in periods of boom.

The recommended policy for our South African government, is to become a proactive investor for innovation activities of firms whilst their growth is in a slump, during this economic recession. This can be practically implemented by relaxing the criterion or investment decision making frameworks by consulting private sector forums such as Consumer Goods Council South Africa and venture capitalists and take into account economic declines and booms respective needs.

4. The R&D tax incentive process is admin intensive and does not stimulate firms to invest in R&D

The outcomes of direct investments outweigh those of indirect investments (commonly tax incentives). There are two primary reasons for this;

- Direct investments allow for new technological and industrial changes.

- Firms may use the tax incentive to avoid taxation and increase profits but not necessarily increase additional investment in R&D as with the Netherlands and Canada case.

In fact countries with higher indirect mechanisms have lower R&D investments by firms when compared to those with more direct investment. A mission oriented state finances as a direct form of investment.

Our policy recommendation, is for government to abandon Income Tax Act, 1962 (Act No. 58 of 1962), and Tax Laws Amendment Act. Rather forecast R&D tax incentives per year, and provide direct investment to firms. However its abandonment must be phased out in 3 to 5 years, with the caveat that industries with the most R&D tax incentives claimed, will determine the allocation of direct investment per industry. This will also allow for a short term boost in R&D spend from firms in the interim and contribute to economic growth and job creation. Also government will need to put in place an audit team to evaluate R&D spend in companies, to avoid corruption.

5. Commercial banks are not patient lenders, that can accommodate the uncertain nature of innovation experienced by firms

Globally development banks such as KfW in Germany have been the most active when investing in new ventures and innovation development and most recently focused on projects that promised green growth. South Africa has a handful of what is considered development banks; IDC, Development Bank of South Africa (DBSA), SEFA, NEF, Independent Development Trust (IDT), Land and Agricultural Development Bank of South Africa, National Youth Development Agency (NYDA), Land and Agricultural Bank (Land Bank), however many do not have the mandate of funding innovation projects by firms.

The entrepreneurial state needs to be a patient capital investor. Patient capital investing bridges the gap that commercial banks cannot provide to firms, as the innovation chain may be long and uncertain. An entrepreneurial state should have a high tolerance for risk, a long term view and is flexible to the needs of the innovating firm.

Our policy recommendation for an entrepreneurial state is for the existing development banks to embrace the characteristics of a long time view for the investment, have a higher risk-tolerance, provide management support for the firms intended outcome of their innovation activities, be a coordinator in seeking partnerships between the firm and government agencies or parastatals. When practically implementing, we suggest working groups with patient capital DFIs such as KfW. International multilaterals, may be open to collaboration on funding such initiatives.

6. The existing funding agencies for innovation are too risk averse for innovation

It is clear that government funding agencies are too risk averse for innovation activities, throughout the article we refer to strict criterion and standards required to obtain government funding for innovation. An entrepreneurial state requires an investor that can structure the states investment to be across high and lower risk investments so the successful investments compensate for the failed investments, similarly to how a venture capitalists portfolio is structured. It also requires that the government shares the rewards with the firm post the investment. The government can use various mechanisms to capture their return on investment such as equity, royalties or shares. The state needs to jointly share the risks and rewards with firms. If the state were to follow similar thinking to venture capitalists, where every winning investment, is accompanied by many losses.

The policy recommendation is that the state manages their investments similarly to a venture capitalist by being equally amenable to high risk failures and capturing their share in the rewards through various mechanisms. When implementing this policy, we recommend the state consults with venture capitalist firms on how they structure their portfolios and also introduce experienced venture capitalists and entrepreneurs as part of their investment decision making committees. It will be important to get a good mix of conservative government investors and more entrepreneurial investors.

7. Inefficient government institutions remain problematic for the speed expected by the firm in the innovation sphere

Many of today's thriving economies of East-Asia were historically faced with similar challenges regarding weak policy capability that is currently faced by African countries, as a result, African countries can learn from the solutions they implemented. These East-Asian countries set clear objectives and worked collaboratively across sectors towards these goals. When building the capacity of their institutions, the state invested in education to develop robust knowledge bases which could guide the various actors of the innovation system, with purpose of them supporting the process of structural transformation.

In order to develop an entrepreneurial state which is capable of driving innovation with the private sector enabling policies must be put in place, however to realise the benefits of these policies, the strengthening of our government institutions is paramount.. These institutions need to be flexible and responsive in order to support innovation firms who are often working on rapid timelines. From a practical perspective we recommend a funding process which is digitally managed with regular updates and milestones so firms can plan effectively, similar to the systems in place at TIA. Firms also need government to outline clear but flexible service level agreements(SLA) for collaborative working (SLA) (e.g. 2 week evaluation process) and live up to the SLA.

Conclusion

The entrepreneurial South African state

An entrepreneurial state of mind for the funding of R&D requires the government to fund the most uncertain phase of research that the private sectors perceives as too risky. This can ensure that innovations which are overlooked by private sector investors in an uncertain economic climate are not lost. This 'mission oriented' state which invests in high risk firms requires not only a mindset change but also extensive institutional capacity building, and a detailed overhaul of ways of working to become more flexible whilst also changing the evaluation criteria for the types of investment government will consider.

About the author, Sandiso Sibisi

Sandiso is the founder of COOi Studios, an Open Innovation advisory and lab for corporates, that bridges the gap between innovative products developed by start-ups and corporations wanting to solve tough business problems, using design thinking.

Prior to COOi Studios, Sandiso served as the Head of Open Innovation for Africa region at Accenture, a global technology consulting company. In 2013, Sandiso established the Born to Succeed programme, which advocates and educates for young women's economic participation, to date the programme has helped over 120 women obtain employment.

Amongst other accolades she is a Sustainable Development Goals ambassador, Mzansi's 100 Inspiring and Aspiring Leaders, a Play Your Part Ambassador with Brand South Africa, an Inspiring fifty Women in Tech and a Mandela Washington Fellow.

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The PCNS pleads for an open, accountable and enterprising "new South" that defines its own narratives and mental maps around the Mediterranean and South Atlantic basins, as part of a forward-looking relationship with the rest of the world. Through its analytical endeavours, the think tank aims to support the development of public policies in Africa and to give the floor to experts from the South. This stance is focused on dialogue and partnership, and aims to cultivate African expertise and excellence needed for the accurate analysis of African and global challenges and the suggestion of appropriate solutions.

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