

## Abstract

### Innovation and industrial policy – from constraints to possibilities

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South Africa's economy is in a low growth trap arising from resource dependence and unreconcilable interests. In the 1980s, the economy was surging ahead of countries such as Korea and Malaysia. Today she lags, especially in non-commodity exports. The fourth industrial revolution and environmental sustainability must concentrate our thinking. This contribution explores innovation policy and industrial policy, and what might be done to enable these to break the impasse. Methods, using Dependency Theory and secondary data analysis are employed.

The first section examines the intents of innovation and industrial policy. The former resides in the Department of Science and Technology (DST); industrial policy, the latter in the Department of Trade and Industry (DTI). Innovation is the art of introducing novel products, processes or behaviours into an organization or market. The art is embedded in the socio-economic fabric, across ICT, manufacturing, services, education, arts and culture, finance, health, and security. DST tabled the Ten Year Innovation Plan (TYIP) in 2008; DTI presents annual iterations of its Industrial Policy Action Plan (IPAP). One would anticipate that the two align, and that their formulation is both pragmatic and user-driven.

The next section considers policy outcomes. On one hand performance of the innovation system; on the other, economic growth, employment and exports. It is shown that innovation policy rests on a linear model - funding research & development, and innovation will follow. The policy celebrates excellence in basic research, rather than enabling user-oriented applied research. The model in turn informs the National Development Plan, and Industrial Policy Action Plans. For the DTI, 'industrial policy aims to increase the economy's ability to produce more and more complex and high value-added products with greater efficiency' (IPAP 2018/19-2020/21). IPAP seeks to be both a specialisation and scale strategy. The former rests upon skill availability, modulated by the promotion of black ownership. The latter through conversion of natural endowment into marketable products e.g. - 'South Africa is by far and away the dominant producer of Platinum Group Metals in the world.' Have resources; shall lead. Not necessarily so.

By their own objectives, both policies have fallen short. The national innovation system, and the economy, move sideways, even as the offshore economy burgeons. IPAP for its part offers diagnostics for the failure - our policies are correct, implementation is the problem. DST, through its new White Paper on STI, is silent on self-reflection.

The synthesis argues that research excellence in all institutions and fields, and shotgun support across all industry sectors is unrealistic. Breakout is possible by drawing on our world-class sectoral systems of innovation and specialist industries, and cascading their expertise into local innovation and production districts. These districts might best be declared SEZs, subject to health, safety, and environmental standards, and in which tax, trade and employment constraints will be eased. New business, employment growth and sustainability are necessary and possible.