



National Science and Technology Forum

S.E.T. for socio-economic growth

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Research for the archives or for socio-economic impact?

When I learnt of the opportunity to write this piece, I struggled to focus my thoughts on what I consider the most critical issue in the South African science and technology space. But then I was reminded of the one thing that the COVID-19 pandemic taught those who were willing to learn, i.e., the impact of accurate, ethical, non-biased scientific research studies on the decision making and policy implementation, human rights, and the socio-economic soundness of the country. On the positive side, the pandemic has brought about greater awareness of our vulnerability and of the urgency of advancing sustainable development with multidisciplinary solutions.

Then I thought to myself – research output and related scientific studies are increasingly monitored, recognised and rewarded at different platforms, and for different reasons in our country. My concern, however, is the lack of consideration for research impact. I may not have answers, but questions flood my mind and I can't help but wonder – should we reward research that does not translate or develop solutions to real life issues of the day? And, what about preparedness to respond to local and national crises? Shouldn't we see South African institutions of higher learning and research organisations joining hands with the public and private sector to seek answers leading to the wellbeing of the nation? Shouldn't we get used to seeing professors and industry leaders joining hands and visiting our schools to share their journey and encourage the young generation as they navigate school and the pressure of making future career choices?

I may not do due diligence to the concept of research impact in one piece but indulge me as I ramble through the piece to lay a foundation.

On the home front

I bemoan the high number of research articles, books and chapters that make good reads, yet they may not offer solutions to problems in any sector within the country. However, I find solace in the fact that South Africa is home to the likes of Professor Tebello Nyokong, who

committed their career to finding solutions to the social ills of this age. Professor Nyokong, holder of 'The Order of Mapungubwe' awarded for outstanding contributions in the field of science, is engaged in ground-breaking research on a new cancer diagnosis and treatment methodology called "photo-dynamic therapy" which is intended as an alternative to chemotherapy. To date, she continues to do outstanding work in training chemists, particularly women, in the sophisticated skills needed to keep South Africa at the cutting edge of scientific development. <https://thepresidency.gov.za/national-orders/recipient/tebello-nyokong-1951>

You might be interested to note that South Africa is investing in various initiatives intended to build resilient infrastructure, support research and innovation and domestic technology development in an inclusive and sustainable manner - <https://sdgs.un.org/statements/south-africa-16231>. The policy environment has been designed such that it is conducive and advances an inclusive and sustainable system of innovation that also supports sustainable industrialization. The policies that have been introduced have led to the introduction of various programmes intended to support domestic technology development and research and innovation. These programmes include sector innovation funds, R&D tax incentive, youth technology innovation fund, grassroots innovation fund (to advance an inclusive and responsive innovation system) and the broadband policy to universal access to reliable, affordable and secure broadband infrastructure and services, and stimulates sustainable uptake and usage of ICTs.

The picture I painted thus far whispers "all hope is not lost" to the ear of the young generation in South Africa. But then taking a closer look at state of governance and service delivery in our provincial and local governments, municipalities in particular, I ask myself if the nation still believes the message echoed by Nelson Mandela – "*A fundamental concern for others in our individual and community lives would go a long way in making the world the better place we so passionately dreamt of.*"

I'm tempted to pen down my opinion for the end of 2022 as follows: 'South Africa will not thrive in the post-covid pandemic without encouraging and supporting research that translates to policy implementation, socio-economic development, quality education, entrepreneurship, innovation, and technological advancement'.

We should be encouraging and rewarding research output leading to policy change and effective implementation, community development, research and sustainable industrialisation, think tanks, innovation hubs, sustainable youth education and empowerment programmes, new technologies and commercialisation. Again, it's just me thinking aloud!

Leading the change in Africa

Africa remains the world's least industrialised region even though there is plenty of ambition to industrialise. African research and technology organisations (RTOs) as entities that are mandated and empowered to catalyse the industrialisation process can work even more

efficiently and effectively if among others they were better organised to: contribute to the development of the continent; pool resources and share infrastructure amongst themselves; implement some intra-Africa collaboration initiatives; and demonstrate their effectiveness through relevant research, development and innovation that is aligned with continental priorities in order to garner more support from governments.

South African research institutions are leaders of research with socio-economic impact in the continent. Most (not all) heed the voice of former president Kwame Nkrumah at the Organisation of African Unity (OAU) Summit in 1963 – *“... we have been too busy nursing our separate states to understand fully the basic need of our union, rooted in common purpose, common planning, and common endeavour. A union that ignores these fundamental necessities will be but a sham. It is only by uniting our productive capacity and the resultant production that we can amass capital. ... It is within the possibility of science and technology to make even the Sahara bloom into a vast field with verdant vegetation for agricultural and industrial developments.”*

While acknowledging the leading role that South Africa plays in the scientific research space within the continent and the wide-ranging initiatives by the SA research institutions, I’m biased to applaud the Council for Scientific and Industrial Research (CSIR) and the North-West University (NWU) for the launch of WAITRO Africa Special Interest Group (SIG) with immeasurable support from the Multilateral and Africa Cooperation Chief Directorate of the Department of Science and Innovation (DSI). The CSIR currently serves on WAITRO executive board as a Regional Representative, with the (NWU) serving as Regional Focal Point for Africa. The WAITRO Africa SIG was formed to promote collaboration among African RTOs in order to enhance their capacities for innovation that will lead to improvement of the quality of life of the people and the economic competitiveness of the countries of Africa. About 29 African institutions are members of WAITRO global.

The SIG will, among several research development roles provide a platform to strengthen relations between African RTOs and improve cooperation with other regions and RTOs for industrial development; secure national, regional and international funding for programmes, and strive to achieve institutional capacity building and research management.

As you may be aware, the World Association of Industrial Technological and Research Organisations (WAITRO) is an independent, non-governmental and not-for-profit association that was established to encourage cooperation among industrial research and technology organisations. WAITRO is a global membership-based association that promotes collaboration amongst partners and members, and the association puts science, technology and innovation at the heart of sustainable development. The organization is committed to increasing the impact of research and development to contribute to the sustainable development goals (SDGs).

Engaged Research

It is increasingly required from universities and research institutions to report on the outcome of their research, not only as it translates into policy and practice, but also further in terms of how the research affects society. Thus, we should consider drawing on the assets in the society to strengthen engaged research in our institutions.

The assets at our disposal include natural capital (biodiversity), manufactured capital (housing, electrical, transportation), human capital (population size, personal health and distribution), social capital (norms, values, institutions and trust in them), knowledge capital (public knowledge created through experience, invention and research).

A quick comparison of traditional and engaged research is summarised below to potentially influence our decisions on whether we should encourage research output just to fill up the shelves in our archives, or conduct research with socio-economic impact.

Traditional Research	Engaged Research
Breaks new ground in the discipline.	Breaks new ground in discipline + direct application to broader public issues.
Answers significant questions in discipline.	Answers significant questions in discipline relevant to public/community issues.
Reviewed/validated by qualified peers.	Reviewed/validated by qualified peers + members of the community.
Based on solid theoretical basis.	Based on solid theoretical and practical bases.
Applies appropriate investigative methods.	Applies appropriate investigative methods.
Disseminated to appropriate audiences.	Disseminated to appropriate academic + community audiences.
Makes significant advances in knowledge and understanding of discipline.	Makes significant advances in knowledge and understanding of the discipline + public social issues.
	Applies the knowledge to address issues in the community.

Let's pause here and reflect. Who knows, time permitting we might revisit the matter and focus more on monitoring/measuring research impact in South Africa.

So long,

The opinions expressed above are those of Prof Nnnesi Kgabi, and do not necessarily reflect the views of the [Executive Committee](#) or [members](#) of the NSTF.

