



# Distributed and Bottom-Up Investments to Promote Innovation for Inclusive Industrialization

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## Abstract

Democratic South Africa was successful in setting up a policy position and direction to promote innovation for inclusive industrialization. However, policy implementation has met with a fragmented economic system, slowing down the pace significantly. Essentially, the policy approach appears to assume that there is fertile ground for implementation, whereas the declining levels of innovation and deindustrialization suggest that the ground is infertile. Under this premise, the likelihood of achieving the Sustainable Development Goals (SDGs) by 2030 is low. Fragmentation, the dominant character of the South African economy, has historical bearings, whereby the large African majority are at the periphery of productive economic activities. Successful sustainable development would have to resolve this dominant unequal paradigm, which is not sustainable. The research develops a distributed approach to investment in innovation and industrialization,

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giving priority to grassroots innovation actors. The first stage of the national system of innovation (NSI), which was more top-down, offers a conceptual lens for organizing and stimulating innovation. It provides the segue to the next phase – a distributed approach and furthering the mindset of the Fourth Industrial Revolution (4IR). The approach will enhance innovation capabilities among innovation actors, thus capacitating them for the SDGs. Considering their significant contribution to the COVID-19 global economic recovery, the emphasis is on growing the proportion of manufactured medium- and high-tech products. Therefore, resources acquired through partnerships are to be allocated toward distributed investment rather than short-term outlook initiatives. The presented approach will further catalyze innovation for inclusive industrialization. The research is unique because it leverages distributed thinking in the 4IR era.

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**Keywords**

Inclusive · Innovation · Industrialization · SDGs · Distributed · 4IR

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**Introduction**

Sustainable development (SD) targets repeatedly developing society through current and future generations (Cohen 2021). SD is underpinned by environmental, economic, and social issues and strikes a balance among them. According to the 2020 Africa Sustainable Development Goal (SDG) Index, South Africa is ranked number 6 out of 52 countries (National Advisory Council on Innovation (NACI) 2021). Under the leadership of the late Kofi Annan, Secretary-General of the United Nations, the world mobilized around the eight Millennium Development Goals (MDGs) for the period 2000–2015 (Sachs 2012). The MDGs set the scene for society to resolve global challenges collectively. With SD being the next global challenge, the SDGs were initiated in 2015 for achievement by 2030 and consist of 17 goals.

For South Africa faced with high levels of poverty, unemployment, and inequality, SD is an important lens to understand the challenges and provide long-term solutions. COVID-19 exacerbated poverty levels. It is estimated that in 2020 the global poverty levels increased by approximately 119–124 million people (United Nations 2022a). South Africa is 62.2% away from achieving the SDGs based on the Africa SDG Index methodology. On the Environmental Performance Index (EPI), South Africa is among the top 100 of 180 countries surveyed (African Union 2021). NACI's inclusion of SDG indicators in the annual South African science, technology, and innovation (STI) indicators report provides visibility to relevant stakeholders, thus a nudge toward mobilizing for SDG attainment.

It is widely accepted that innovation is essential for long-term development. Nations that have lifted their people to prosperity are characterized by investment and commitment to innovation (Christensen et al. 2019). For this reason, this chapter selects industry, innovation, and infrastructure (SDG 9) as the primary focus. Success

in mainstreaming innovation in industry and long-term infrastructure development, including digital, would require a range of partnerships, thus partnership for the goals (SDG 17) is included in the chapter. Given economic constraints, one could visualize innovation (an aspect of SDG 9), enablers such as quality education (SDG 4) (Sinha and Lutchman 2021) and partnerships (SDG 17) as the way to attain the other SDGs.

In South Africa the trends for industry, innovation, and infrastructure (SDG 9) and partnerships for goals (SDG 17) are upward. Under SDG 9, the sub-indicators include infrastructure score, logistic performance index, expenditure on research and development (R&D), scientific and journal articles, mobile broadband subscription, and population using the Internet. The sub-indicators for SDG 17 include tax revenue, government spending on health and education, levels of customs duties on imports, visa requirements score, and government statistical capacity (The Sustainable Development Goals Center for Africa and Sustainable Development and Solutions Network 2020).

Fostering a nationwide culture of innovation is positive for the economy. Efficiency innovations allow for significant cost savings while sustaining innovations positions for increasing selling prices. These gains could be reinvested toward market creating innovation, to create new industries (Christensen et al. 2019). Significant efficiency gains could be better achieved in thermal power plants by integrating environmental innovation within the process, rather than end-of-pipe technologies (Johnstone et al. 2017). While a globalized and interconnected economy offers partnership opportunities, it also increases competition. Therefore, a widely shared mindset for innovation is imperative, including for business model innovation.

Although the trends on SDGs 9 and 17 show moderate improvement, the assessment at the time of this report showed significant challenges in both. Furthermore, the sub-indicators for SDG 9 do not sufficiently cover the full scope. As an example, and although important for the economy, R&D is a weak proxy for innovation and industrialization (Mazzucato 2013). Using the 2021 Global Innovation Index (GII), South Africa ranks high on market sophistication at 23 (World Intellectual Property Organization 2021). Disappointingly, South Africa is ranked above 51 on the rest of the GII indicators. Additional rankings for South Africa are on institutions (55), human capital and research (67), infrastructure (83), business sophistication (51), knowledge and technology outputs (61), and creative outputs (79).

Observing the indicators for SDGs 9 and 17 and GII, it is evident that innovation and industrialization are both below par in South Africa. Both innovation and industrialization require a range of base infrastructures. This chapter develops an approach to bring about an improvement toward fostering innovation for inclusive industrialization. The chapter first reflects on the current paradigm to better appreciate the status quo and then presents a shift toward an alternate paradigm positioning for South Africa, to improve its chances of achieving the SDGs.

The view is that a culture of innovation and industrialization would improve the chances of success in achieving the rest of the SDGs.

## Current Paradigm

### Systems of Innovation

The concept of national system of innovation (NSI) is the dominant paradigm. It rests on effective interactive learning among innovation actors as the determinant for the long-term development of an economy (Freeman 1995). Interactive learning develops human capacity among the innovation actors, thus positioning for further innovation within the sector and other sectors. The NSI concept succeeded the linear approach to R&D, which assumed that R&D investment automatically results in innovation and economic growth (Cele et al. 2020; Mazzucato 2013). In the long term, such dynamic and differentiated interactions bring about an innovative society. The NSI concept is a guide. Ultimately, the system self-organizes within the set parameters.

South Africa adopted the NSI concept as a policy instrument within the 1996 White Paper on Science and Technology (S&T) (Department of Arts, Culture, Science and Technology (DACST) 1996). The democratic government saw innovation as imperative to reversing the effects of an unequal past and bringing about an inclusive economy. The positioning of an inclusive economy is aligned with the constitutional ideal that South Africa belongs to all who live within it. Inclusivity refers to increased participation in innovation activities by South Africans and to equally sharing the gains from innovation outputs. When inclusive, the economy has access to and would be positioned to attract diverse talent (Hunt et al. 2015) – implying that the NSI has access to a broad and diverse pool of ideas, which are sources for innovation.

Although there is recognition that the NSI is maturing in the right direction (Department of Trade Industry and Competition 2018), the 2021 GII shows that its impact on the South African economy remains minimal. The 2019 White Paper on STI recognizes that the NSI remains largely fragmented and does not sufficiently interface with other key government policies such as the Industrial Policy Action Plan (IPAP) (Department of Science and Innovation 2019). In South Africa, the NSI employs a centralized and top-down approach, with the Department of Science and Innovation (DSI) as the lead custodian and coordinator. Due to weak capacity and other limitations, Raphasha (2016) finds that even within the economic hub, Gauteng Province, the NSI is not aligned with the regional (provincial) innovation system.

The misalignment brings about fragmentation, hindering interactions and learning among innovation actors. Both are the basis for an effective and functional NSI. The 2019 STI White Paper and the National Development Plan (NDP) both aspire for STI to be at the center of developing the South African economy. Contributing to SDG attainment requires a central focus on STI. If fragmentation persists, achieving such mainstreaming will be challenging.

There is recognition that a top-down approach is prone to excluding other innovations, especially within a context where such top-down capacity is still nascent and developing. For this reason, the Technology Innovation Agency (TIA) (an agency of the DSI established in 2008, following the 2007 innovation survey by

the Organisation for Economic Co-operation and Development (OECD)) now implements grassroots innovation programs (TIA 2021). This is a significant advance as it attempts to close capacity gaps at the national level and allows innovation to develop organically, from the ground level. As grassroots innovations are already socially accepted at the local level, the task of government agencies such as TIA is to help scale for wider impact. On the other hand, innovations originating externally will require further socializing to gain acceptance, ownership, and absorption at the local level.

Regardless, sufficient capacity is still required at the national level, especially in international technology transfer and import. Sibanda and Straus (2020) find it imperative to reignite the declining manufacturing sector and start reversing the abnormally high unemployment rate of 34.9% (Trading Economics 2021). The irony, in this context, is that youth are often associated with innovation, and at this time, youth unemployment is the highest (66.5%) (Trading Economics 2021). Without a strong manufacturing base, the industry will remain weak.

Manufacturing as a share of the Gross Domestic Product (GDP) has declined from as high as 25% in the late 1980s to about 12% (Marwala 2020). In the same period, the contribution of services to the GDP has risen to over 60% (Sibanda and Straus 2020), and high-tech export as a share of manufactured exports remains significantly low at 5.5% (NACI 2020, 2021). The data agree with the GII, and for an economy with low skills, the unemployment rate is likely to remain high. Among the advantages of the manufacturing sector is its bias toward absorbing the low-skilled workforce (Moyo 2009). Essentially, growing a competitive manufacturing sector would bring economic and employment growth.

Through learning by doing, both the company and the workforce gain new knowledge, enabling them to successfully handle complex challenges over time (Malerba 1992). Given the large youth population in South Africa, and the extremely high youth unemployment rate (Political analysis South Africa 2022), an innovation-centered turnaround has the potential to renew hope. Of course, youth unemployment and other developmental challenges are shaped – positively or negatively – by politics. The African Union’s (AU’s) approach focuses on assisting member states to overcome politics and move toward inclusive economic development as envisioned in Agenda 2063 (Africa Union 2022).

## Industrial Revolutions

The outset of the First Industrial Revolution (1IR) in Britain was advanced by the significant use of new tools and technologies within the manufacturing sector (Polanyi and MacIver 1944). The steam-powered engine was the dominant and decisive technology of the time (Nuvolari 2004). It enabled long-distance transport of inputs and products at a significantly lower cost, setting the scene for a globalized society. At the time, R&D was largely localized and informal; the principle of economies of scale was in its early stages.

The Second Industrial Revolution (2IR) exploited fundamentals in electricity generation and the functionality of the electric motor (Marwala 2020). Sadly, the electricity supply remains unstable in South Africa, and Moyo (2009) notes that this adds to the higher cost of doing business in the continent. At the time of 2IR, the increased scale required company-level R&D and formalized intellectual property regimes (Lamoreaux et al. 2004), equally requiring higher levels of financing.

The 2IR period saw a rise in the use of liquid fuels in both automobiles and airplanes. The first airplane officially took off in 1903, and Ford popularized the model T automobile during this period (Christensen et al. 2019). Although the first conference on SD only took place in 1987 (Cohen 2021), the start of the 2IR is arguably the beginning of environmental degradation. Interestingly, Polanyi and MacIver, in their 1944 publication, already warned about the 1IR and its impact on possibly degrading society. The authors foresaw that the unhampered pursuit of profit maximization would stop at nothing. According to them, a fundamental transformation had occurred with the onset of the 1IR: previously, economic activities had been subjected to social activities, while with the 1IR, social activities became governed and subjected to the rules of the economy and market forces.

After World War II (WWII), national R&D laboratories became the order of the day and led to the NSI concept (Chesbrough 2019). Leading nations invested heavily in R&D to support local companies toward international competitiveness and thus the nation's competitiveness. In the Third Industrial Revolution (3IR) period, companies relied not only on internal knowledge to advance (Mowery 2009). Information and communication technologies (ICT) and biotechnology benefited from national investments, resulting in what Mazzucato (2013) refers to as the entrepreneurial state, which not only regulates markets but equally creates and shapes new ones.

From the SDG perspective, the state's role is imperative in directing R&D and, accordingly, other investments. Although advances in the 2IR launched industries, this led to negative environmental impacts. Advanced technologies of the Fourth Industrial Revolution (4IR) are poised to lead SDG efforts (Hoosain et al. 2020). Advanced technologies of the 4IR bring about a level of connectedness (Lee et al. 2018), where data display is almost real-time, enabling higher efficiencies across several economic sectors and spheres of society (Marwala 2020). Within the context of the current economy, it means that data is the new oil, as it can extract new value. Because the paradigm of the 4IR is accelerating the convergence of technologies, advanced technologies are improving at a rapid pace (Schwab 2017).

The convergence paradigm of the 4IR signifies the creation of something new at a rapid pace. Seeing that 4IR technologies have the potential to guide SDG attainment, understanding how to go about investing and developing suitable capabilities is essential. The SDG Center for Africa and Sustainable Development and Solutions Network (2020) noted that Internet usage in South Africa remains low at 56%. The implication is that many citizens remain on the fringes of society and will not benefit from what 4IR has to offer, reducing the pace toward attaining the SDGs. SDG attainment is unlikely under the current paradigm; thus, attainment requires an alternate paradigm.

## Toward an Alternate Paradigm

### Transformative Innovation Policy

In 1996, when South Africa adopted the NSI concept as its policy instrument, the aspiration was to contribute to transforming the economy, thus creating inclusivity. R&D and NSI are considered the first two frames of innovation policy, with the state at the forefront of fixing and shaping markets, respectively, for competitiveness (Schot and Steinmueller 2018). SD and the SDGs were both absent at the time when these two frames emerged and dominated STI policy. Both appear inadequate for transforming the socio-technical system for a world of sustainability. Catching up may suggest following in the footsteps of the global North, which is a dominant theme for economically developing the global South. At the same time, the global South must follow a different environmentally friendly path to develop their economies for a sustainable world.

If the global South solely follows the path of the global North, it will only exacerbate constraints toward SD. Sequentially, transformative innovation policy first focuses on changing the socio-technical system. This line of thought is aligned with the techno-economic paradigm of Freeman and Perez (1988), although the techno-economic paradigm largely focuses on the need for new economic systems to help launch new technologies. It – the techno-economic paradigm – recognized that the old systems are incapable of successfully introducing new technologies, a mismatch which delays the diffusion of new technologies. In the same way, transitioning toward sustainability requires a new order of socio-technical systems (Schot and Steinmueller 2018).

Obviously, and in practice, new systems negotiate with older and outdated systems (Marx and Paul 1978). In negotiating and creating modern systems, learning from the past occurs. To some extent, the new systems benefit from previous investment, which is sunk cost. Although sunk cost tends to hinder radical innovation (Christensen et al. 2019), in circumstances where new systems learn from the old, there can be a benefit. The same could be said about the technology leapfrog, where a new understanding is used to eliminate what is now understood to be unsustainable infrastructure(s) from design (Schäfer et al. 2014). Where possible, and based on new understandings, new systems augment older ones to modernize services and delivery modes. Therefore, there are lessons on industrialization to be learned by the global South from the global North.

To accelerate and sustain adoption within the context of the global South, the use of a market pull rather than a technology push is recommended (Fong 2009). Systems develop for a purpose(s); changing them could bring about harm and other unintended consequences. Among the duties of policymakers is to normalize a resilient approach or adaptability and thereby manage unintended consequences. To proactively understand possible unintended consequences requires a sufficient understanding of current systems. Transformative innovation manages this risk by experimenting, an essential tool for policymakers. Understanding current systems guides designing transformative experiments in innovation policy, including hypotheses.

Based on advanced technologies of the 4IR, feedback loops for comprehensive decision-making during these experiments can be easily implemented. By following bottom-up approaches at the grassroots level, teething issues can be addressed before official roll-out. Equally, some solutions are only limited to specific circumstances. As such, the drive is no longer about national roll-out; it would be about achieving system functionality around each context and thus building a cultural ecosystem encouraging innovation.

The impact of climate change and associated just transitions differs even within a single country. As such, broad solutions might not work, as understanding the specificities is imperative. Although the concept of transformative policy is still in its early stages of development, it offers new policy insights. These include setting clarity as to longer-term direction, embracing opportunities that current challenges present, inclusive mobilization, holistic approaches to developing policy, and improving governance (Fagerberg 2018). South Africa already embraces the NSI as a conceptual lens for organizing and stimulating innovation and aspirations for the 2021–2031 Decadal Plan on STI are ensuring these are aligned to transformative innovation policy.

An example would be a whole government approach, which places innovation at the heart of economic development.

## **Distributed and Bottom-up Investment**

Lee et al. (2018) correlate the 1IR and 2IR with a centralized network, 3IR with a decentralized network, and the 4IR with a distributed network. In a centralized network innovation actors are only connected through a central actor. Decision-making occurs through the central actor, and there is no direct interaction among the innovation actors. In a decentralized network, and depending on the system requirements, the central actor splits into a few hubs. The hubs are connected for the flow of information and knowledge, and there is no direct interaction among the innovation actors. The innovation actors within each hub and across hubs are connected only through hubs. Information flow from top to bottom is likely to be fast; however, there are no mechanisms for innovation actors to reflect collectively, let alone co-create. In both centralized and decentralized networks, the central actor and hubs are essential for network functioning.

In a distributed network there is a direct connection among innovation actors, and there is no mediator. Decision-making takes place by innovation actors and among them. In this setting, an authoritative body such as the government or government entity is an innovation actor and interacts with other innovation actors in various innovation activities. Innovation actors are different, and they bring their differentiated knowledge and capabilities, hence the notion of differentiated interactions, bringing about the technical change which moves the system forward (Dosi et al. 1988).

Centralized and decentralized approaches largely follow the top-down approach, while distributed approaches combine bottom-up and top-down. A study of

non-governmental organizations (NGOs) found that they leverage both bottom-up and top-down approaches (Panda 2007). Bottom-up ensures inclusive participation by all affected stakeholders (directly or indirectly), while top-down focuses on alignment with key decision-makers such as government and other international bodies. Capacitating stakeholders at the grassroots is essential for their meaningful participation.

Combining top-down and bottom-up approaches enables co-creation. On its own, each approach has limitations, reducing its effectiveness. Regarding the SDGs in South Africa, investing in the capacitating of affected communities is essential. When sufficiently capacitated, affected communities will be adequately positioned to co-create options, for instance, toward a low-carbon economy within their context. Although industrial towns came into being because of coal mines, coal to electricity, and coal to liquid fuels facilities, some community members might prefer to remain there after the shutdown. Therefore, co-creating solutions with other stakeholders for a range of these needs is essential.

At the same time, context is essential. A low-carbon economy has different meanings in different parts of the country. For example, in the Mpumalanga Province (referred to as Mpumalanga), where coal mines, coal to electricity, and coal to liquid fuels facilities are prevalent, the focus is on reducing reliance on coal, finding environmentally friendly technologies, and transitioning the current workforce for a low-carbon economy. In Limpopo Province (referred to as Limpopo), the intensification of agro-processing could start with renewable energy sources and technologies. Equally, Mpumalanga has significant energy infrastructure while Limpopo has little. The energy infrastructure in Mpumalanga offers an opportunity to re-think innovations for environmental sustainability. Therefore, innovation and investment would look vastly different.

The implication is that when South Africa engages the international investment community, these differences must be elevated, as investment needs are not the same. Partners joining toward SDG attainment must appreciate this reality. In this setting, broad goals at national level should be augmented with a sectoral and regional approach to improve the SDG performance trajectory. Trade and Industrial Policy Strategies (TIPS), a local economic research NGO, has hosted sectoral engagements on a just transition for the Mpumalanga Province (TIPS 2022). TIPS facilitates co-creating pathways from grassroots level to improve chances of success. Advances in 4IR technologies could be further leveraged to connect data from grassroots to national, thus enabling system-wide connectedness for inclusive decision-making.

At the same time, investment must target high-growth sectors. As indicated by the United Nations (2022b), it was medium- and high-tech manufacturing that not only showed growth patterns in 2020 but shaped the global COVID-19 economic recovery. The trend toward the usage of advanced technologies requires increased production in medium- and high-tech. This was further shown by the global decline in low-tech manufacturing in the same period. Interestingly in South Africa, 67.66% of manufacturing employment is in low-tech (NACI 2021). There is a need for South Africa to shift its manufacturing investment to medium- and high-tech. Regrettably, high-tech exports, as a share of manufacturing exports, have remained low at around 5.5% since the 2000s (NACI 2021).

Progressively, South Africa's small, micro, and medium enterprises (SMMEs) contribute 50–60% of national employment (Mahoney 2022). Investing in SMMEs to scale and participate in medium- and high-tech manufacturing could positively impact both employment and economic growth.

## **Innovation for Inclusive Industrialization**

The proposed distributed and bottom-up investment largely targets grassroots innovation. The implication is for investment that is inclusive and strives for meaningful participation by all members of society. No one should be left behind, and no innovation should be considered less important. Equally, investing in scaling grassroots innovation creates opportunities for future partnerships between the government and society at large. South Africa has a range of programs for youth participation in the economy, including the National Youth Development Agency (NYDA).

More still needs to be done to achieve sufficient impact. On knowledge production, South Africa is among the leaders within upper-middle-income countries (NACI 2021). Translating this knowledge through innovation to enhance existing industries create new ones, or a combination, remains a challenge. According to Steuart (2019, p. 2) of the Community of Practice (CoP) in Innovation and Inclusive Industrialization at the University of Johannesburg, “neither innovation nor industrialization is inherently inclusive.” Already in 1944, Polanyi and MacIver had worried that subjecting social activities to the rules of the economy and markets is likely to bring about societal harm.

On their own, both innovation and industrialization do not pay attention to social harmony and cohesion. Essentially, inclusive industrialization is not something that happens automatically. As such, promoting innovation for inclusive industrialization is imperative, implying that the approach to innovation will then equally be inclusive. In the same way, just transition will not happen on its own; considerable efforts must be exerted to improve the chances of achieving the desired outcome, that of social unity. Equally, the UN 2030 Agenda on SD speaks to this reality. Left to their own devices, innovation and industrialization would continue their economic pursuit, with no consideration for the environment and social elements. Once again, the state's role is imperative, if we are to achieve success.

Inclusive innovation is about recoupling economic growth and social and environmental development (Chataway et al. 2014). The pace and direction of innovation, when decoupled from social and environmental development, tend to be exclusive. As already alluded to (cf. section “[Industrial Revolutions](#)”) with regard to the 4IR, efficacy is the order of the day, thus a balanced approach is required to avoid missing opportunities. Inclusive innovation applies the same thinking as SD; there is a deliberate effort to manage economic growth carefully. Inclusive innovation recognizes that development has excluded others and left them at the fringes of economic activities (Heeks et al. 2013). The emphasis is now placed on developing solutions for those previously excluded and/or for their involvement in developing

solutions. At the same time, inclusive industrialization is about “decent work, with good wages, working conditions, and labor rights” to enable equitable sharing (Braunstein 2019, p. 93).

Women were previously excluded from industrial activities; therefore, designing and ensuring their improved participation must be prioritized. Braunstein (2019) found that women are underpaid and excluded from labor-intensive industries. It is imperative to explore the use of technologies to improve women’s participation in labor-intensive industries.

## Sustainability

The word “sustainability” goes as far back as the year 1712 when it was used to prescribe long-term management of forests (Scoones 2007). Today, it is about ensuring that development is repeatable over the long term. Companies that emerge ahead of competitors lead and shape megatrends; sustainability is among the megatrends of the twenty-first century (Lubin and Esty 2010). It is also about no longer doing business as usual. As we approach the year 2030 and beyond, sustainability, SDGs, and other related international agendas will likely dominate the business environment.

What is evident from the literature consulted in this chapter is the linkage between SDGs, inclusivity, and distributed approaches. It is appreciated that SD is possible; of course, it requires new and innovative thinking in all spheres of society. It will take time to completely shift from traditional economic growth indicators to full-on sustainability indicators.

Sustainability requires suitable skills and partnerships. Some of the skills and partnerships might emerge from outside the borders of South Africa. In this regard, recent xenophobic attacks on foreigners threaten the sustainability of the South African economy. South Africa’s investment in R&D remains way below the target of 1.5% of GDP. To compensate for this reality, technology import is essential to driving innovation, as argued by Sibanda and Straus (2020), to bolster local manufacturing. Considering tacit knowledge, technology import must be accompanied by human resources for successful and meaningful local technology transfer. Regrettably, the xenophobic attacks hinder the implementation of the technology import strategy, thus regressing local innovation. Therefore, the government must see xenophobic attacks as eroding efforts to increase the ease of doing business in South Africa.

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## Concluding Remarks

Promoting innovation for inclusive industrialization is about not leaving others behind, on both input and output sides. Following a distributed and bottom-up investment improves the chances of achieving inclusive innovation and industrialization. It might

take us much longer; however, we are guided by the African proverb and philosophy stating that “if you want to go fast, go alone. If you want to go far, go together.”

Sustainability is long term, so going there together is the only route to success. The international community must appreciate this expectation of working together over the long term. Partnerships between stakeholders cannot take a short-term view; they must come in for the long term and co-create solutions. By their very nature, multi-stakeholder partnerships bring together multiple perspectives, making them innovative and capable of addressing several development priorities.

South Africa has developed policies to promote partnerships for innovation and industrialization, such as the R&D tax incentive, Technology and Human Resources for Industry Programmes (THRIP), and Support Programme for Industrial Innovation (SPII). The government must continue to shape these initiatives to ensure sufficient private sector participation toward and achievement of the SDGs.

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