

## Policy Brief, March 2019

### Leveraging technologies to boost exports in the fruit industry

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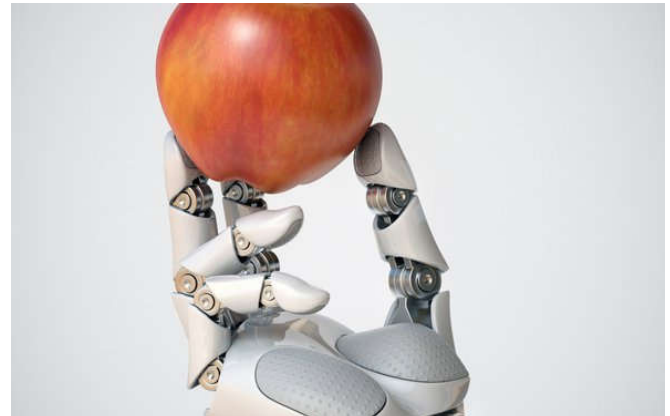
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#### Introduction

Opening an exhibition on the 4th Industrial Revolution (4IR) at Parliament recently, the Minister of Science and Technology, Mmamoloko Kubayi-Ngubane, stressed that South Africa plans to use the 4IR opportunities to deal with poverty, unemployment and inequality – but also that the country needs new skills for the new industries and markets that will emerge. A point in case is the fruit sector which, as a high-value and labour-intensive industry with high export potential, is central to agriculture's contribution to economic growth.

Adopting and adapting to technological changes associated with the 4IR can have huge implications for the industry's global position. While the country is an established world player in specific fruits, it lags behind competitors such as Mexico, Peru and Chile. South Africa also is yet to maximise the substantial opportunities for export growth in high-value and in-demand fruits like berries and avocados.

Research by the Centre for Competition Regulation and Economic Development (CCRED) at the University of Johannesburg shows that harnessing technological change is necessary for producers to keep up with escalating standards; to comply with the many – and



complex – plant health requirements; and to adapt to climate change and environmental constraints.

Our research shows that key technologies in the global fresh fruit industry that must be leveraged by local producers to remain relevant include electronic digital platforms and internet of things, biotechnology, and sorting and cold storage equipment. Collectively, these offer technological solutions to South Africa's key challenges in the fruit industry.

While mainly large players are adopting these technologies, an industry wide scaling can benefit participation and market access for black farmers.

#### Speed to market through digital platforms

The growing number of increasingly more complex plant health requirements in export markets make it difficult for producers to comply and access export markets. The current paper-based and manual systems of export certification require technological solutions to cut down time wasted with frequent trips to government offices to sign paperwork, and eliminate human errors associated with manual data capturing.

A promising local development has been an electronic data-sharing platform, jointly developed by Fruit South

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Africa and the Department of Agriculture, Forestry and Fisheries.

### **“Industrialisation of freshness”**

The growing demand for quality fruit with a longer shelf life has spurred investments in high resolution camera-sorting equipment and cold storage technologies. Producers can grade and sort fruit according to external and internal characteristics, and store fruits for extended periods of up to 10 months.

These technologies enable more effective exports at higher prices by ensuring a longer shelf life and consistent supply of high-quality, defect-free fruit to global consumers.

South Africa in recent years, however, lost its lead position in controlled atmosphere cold storage technologies mainly because of limited government funding and lack of private sector investment. At the same time, limited research and skills to develop new sorting technology mean that most producers import such equipment at escalating costs: a 10-lane sorting equipment cost approximately R80 to R100 million last year.

### **Breeding adaptable and resilient fruit**

The demand for fruit varieties that are adaptable to changing climates and more resistant to pests and diseases has been driving innovations in breeding technologies.

Although the fruit industry has access to locally bred varieties, more imported strains are entering the market due to underinvestment in local breeding programmes and quarantine facilities. The industry mainly still relies on imported varieties, particularly for berries.

However, imported varieties currently take two years in quarantine before commercial use. To remain competitive in markets that are constantly replacing old fruit varieties by improved ones, local breeding – especially of types suitable for worsening climates – must be promoted, and imported varieties processed timeously.

The platform, called Phytclean, captures data on orchards and growers’ phytosanitary records for issuing of electronic certificates. After a pilot phase in the citrus industry, electronic certification will be implemented in June this year from South Africa to the Netherlands.

Another core challenge in exporting fresh fruit is the high levels of congestion and delays at South Africa’s main ports, which reduce shelf life drastically. The situation is particularly acute during peak seasons of major export products such as citrus. In 2011, the World Bank

estimated that delays at the Durban port cost the local citrus industry US\$10.5 million per season.

With delays at the main ports expected to increase as fruit export volumes grow, integrated digital platforms that link local producers’ in-house systems to ports, logistics companies and shipping lines are crucial to foster better planning and faster movement of fruits. Digital solutions that reduce the costs of logistics and ease the export process could increase the value of exports and help new players to enter export markets.

### **Needing an overall systemic shift in responses**

Ensuring fruit supply chains that can compete successfully on the world market calls for a systems integration by industry role players. The CCRED research shows that the local industry’s adoption of technologies has been driven largely by the private sector. If policymakers are serious about leveraging technologies, partnerships and alignment of priorities between government and the private sector are necessary.

The establishment of a Presidential Commission on the 4IR, announced by President Ramaphosa recently, is an important opportunity for considering the policy responses to technological changes in the fruit industry, and agriculture more generally. Our research points to several key considerations.

First are urgent investments in spectrum and internet infrastructure in fruit growing (rural) areas to enable faster connectivity and flow of information. At the same time, talk of the 4IR is almost meaningless without cheaper data.

Another priority is that government and industry move to electronic data-sharing systems and digital platforms linking players in the value chain to address the challenges of limited data and to ease congestion at the ports. Lastly, investments in quarantine facilities help improve local growing of new varieties relevant for climate change.