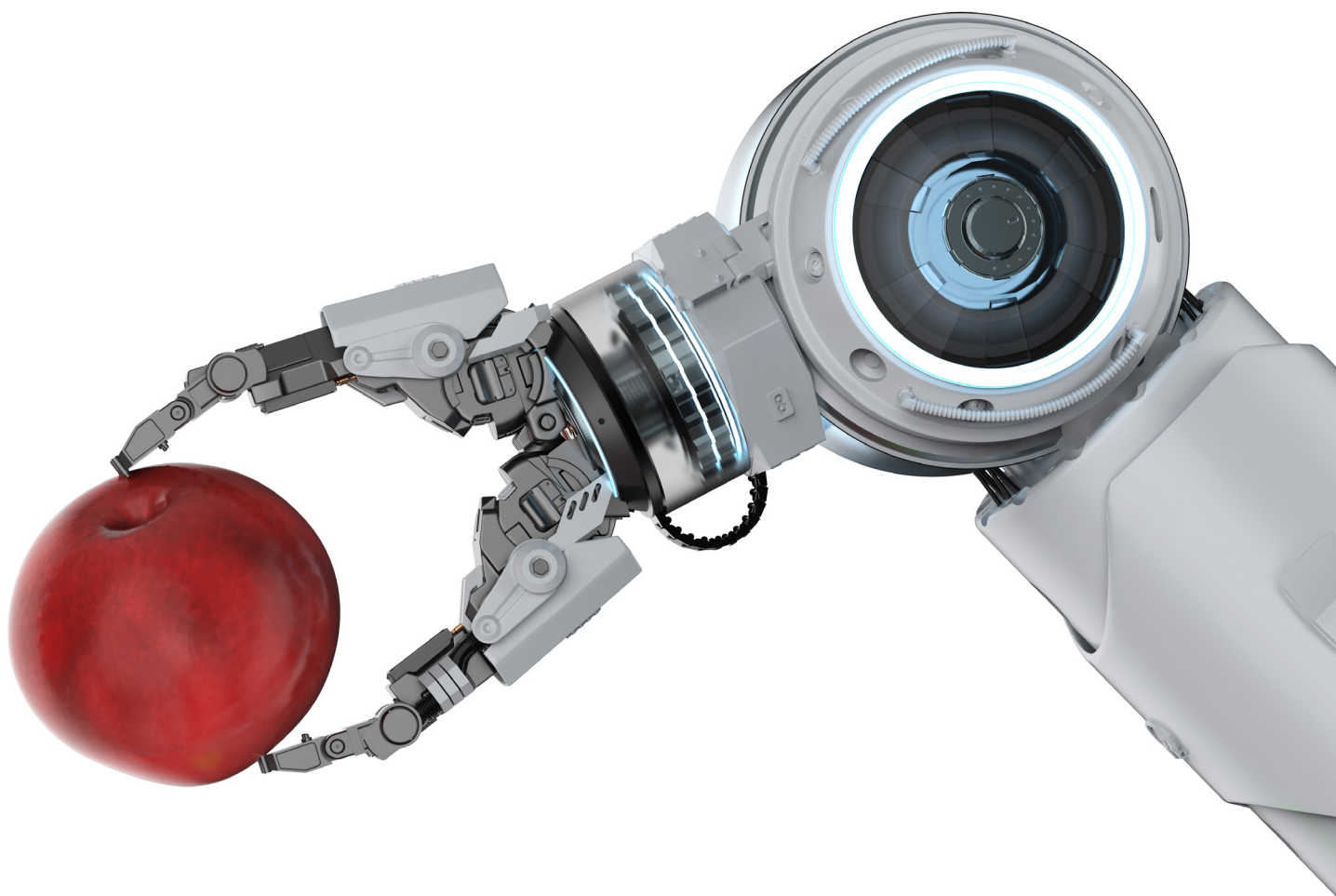


UNLOCKING DIGITAL VALUE

**IN SOUTH AFRICA'S
AGRICULTURE SECTOR**



DIGITAL AGRI-TECHNOLOGIES CAN CREATE SIGNIFICANT VALUE FOR SOUTH AFRICA BETWEEN NOW AND 2026

Agriculture's contribution to South Africa's GDP is declining. Improving sector performance is critical to feed a growing population, help sustain rural communities through agri-sector employment and to support economic growth. The adoption of digital agri-technologies can unlock significant value in this sector but it will take a collaborative effort by all stakeholders to achieve this.

What is at stake? A unique value-at-stake framework⁵ developed by Accenture and the World Economic Forum (WEF) estimates that the adoption of digital technologies could create R671 billion in value for the South African agriculture sector, consumers and society between now and 2026.

The framework identifies the adoption of four digital agriculture technologies—precision agriculture, a connected supply chain, digital marketplace, and autonomous operations—as central to securing this value.

These technologies can help address many of the key challenges facing this sector—from high input costs, to low access to information and credit, and declining productivity. More importantly, the adoption of these technologies could help South Africa create a thriving, sustainable, modern agriculture value chain built for digital.

All stakeholders in this sector have a role to play to drive awareness and put in place the infrastructure, standards and policies needed to drive adoption.

This Point of View looks at the unparalleled opportunity for value creation that digital technologies offer stakeholders in the South African agriculture sector, and the steps they need to take to realise that value.

To shape tomorrow, South Africa must act now.



DIGITAL AGRI-TECHNOLOGIES ADDRESS KEY CHALLENGES

Agriculture is an important engine of growth for the South African economy.¹ While the sector has performed well in recent months, it has lost a lot of ground over the years.

Over the past year, gross farming income increased by 10.2 percent,¹ outperforming the top JSE indices. The agriculture sector was also the largest contributor to GDP growth in Q3, 2017.²

In 2016, the agricultural sector contributed around 12 percent (\$9.2 billion)³ to South Africa's total export earnings, with approximately 70 percent of agricultural outputs used as intermediate products (e.g., feed) in the sector.¹

However, the sector has faced significant challenges over the years. This has seen agriculture's contribution to South Africa's GDP fall from an average 10 percent in the 1960s to approximately 2.3 percent in 2017 (Figure 1).

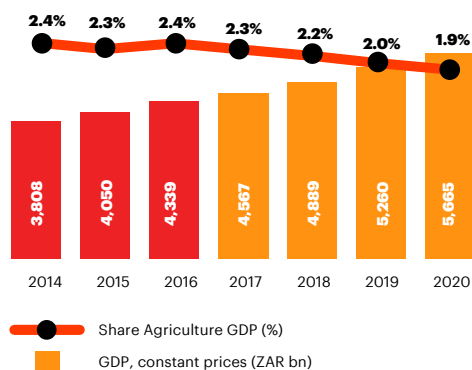


Figure 1 - South Africa GDP and Agriculture's Contribution to GDP

Factors that have accelerated this decline include the rising input costs of electricity and fertilisers which, combined with the weakened rand, put the South African agriculture sector under significant pressure. The dismantling of state support to farmers combined with low import tariffs has also left South African farmers unable to compete in segments such as wheat and dairy against farmers in developed countries who receive state subsidies and are able to offer their goods at prices far below the costs of production. The lack of access to both on-farm (storage and processing facilities) and off-farm (roads, access to water) infrastructure constitute barriers to entry into agricultural markets.

The South African agriculture sector nonetheless remains a significant contributor to the South African economy.

It contributes over 2 percent to the GDP and an additional 12 percent through the value added by related manufacturing and processing. It is also responsible for approximately 9 percent of formal employment in South Africa.⁴

In fact, through its employment of unskilled and semi-skilled labour, this sector remains a mainstay for sustaining rural households.

With rising unemployment, especially youth unemployment, and a growing population, it is imperative to stimulate and increase efficiencies within this sector to accelerate the pace of food

production and increase employment. As only 12 percent of the land in South Africa is classified as arable, increasing yield and reducing wastage (approximately 27 percent of food production is wasted every year) is critical.

Digital technologies, especially the digital agri-technologies that are today emerging to drive precision agriculture, have the potential to address these challenges facing the sector to unlock growth.

HOW BIG IS THIS OPPORTUNITY?

A unique value-at-stake framework developed by Accenture and the World Economic Forum (WEF)⁵ shows that digital technologies could unlock significant value for the agriculture sector, society and consumers between now and 2026.

These new digital agri-technologies are reshaping the agriculture sector, disrupting existing businesses and operating models, and having a profound impact on society. They present new opportunities and challenges for the agriculture sector and policy-makers.

The Accenture and WEF value-at-stake framework⁵ offers insight and a way forward:

- It provides a consistent approach to measuring the impact of technology on business and wider society.
- The framework's 10-year time horizon identifies fast-approaching opportunities and inhibitors, and quantifies the costs and benefits of specific digital initiatives to industry and wider society.

This gives industry stakeholders—business leaders, regulators and policy-makers—the tools and a compass to map and maintain the most beneficial course to take in terms of investment in, and adoption of digital technologies in this sector.

This Accenture point of view (POV), **Unlocking Digital Value in South Africa's Agriculture Industry:**

- **Outlines the case for change**, detailing the challenges the agriculture faces at present.
- **Highlights the digital technologies** that have the potential to help resolve these challenges.
- **Identifies the value-at-stake** that each digital solution presents and the practical implications of implementation.

Throughout this POV, we emphasise solutions that will, in the context of developing nations and South Africa, benefit small to medium agricultural businesses.



THE CASE FOR CHANGE

Digital technologies and initiatives can help solve a number of the key competitiveness challenges that the agriculture sector in South Africa faces. These include high and volatile input costs, low access to information and credit, declining productivity and an inability to provide product traceability.

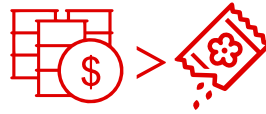
Each of these challenges deserves a closer look

High and rising input costs and a lack of access to critical inputs, like water, are putting enormous pressure on the agriculture industry.

HIGH INPUT COSTS



ELECTRICITY PRICE INCREASES SINCE 2007 HAVE RESULTED IN AN APPROXIMATELY **20 PERCENT** RISE IN AGRICULTURE ELECTRICITY BILLS WHILE CONSUMPTION DURING THIS PERIOD HAS INCREASED BY ONLY 2 PERCENT.⁶



FARMERS ARE ALSO EXPOSED TO EXTREME FLUCTUATIONS IN FERTILISER PRICES AS THEY ARE DIRECTLY LINKED TO OIL PRICES AND ARE NOT SUBJECT TO IMPORT TARIFFS OR GOVERNMENT SPONSORED SUBSIDIES.

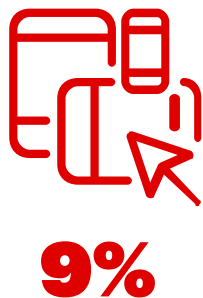


A LACK OF ACCESS TO WATER MEANS THAT OVER **90 PERCENT** OF FARMERS DEPEND ON ONLY RAINFALL FOR IRRIGATION.⁷

Judicious use of resources and reduction of wastage can increase efficiencies and reduce costs.

When one party has more or better information than the other, an imbalance occurs, with one party gaining an advantage over the other. This is information asymmetry. In the agriculture sector, it's creating challenges across the entire value chain.

INFORMATION ASYMMETRY



FARMERS HAVE LIMITED ACCESS TO RELIABLE AND AFFORDABLE CONNECTIVITY AND TECHNOLOGY, WITH LOCAL RESEARCH INDICATING THAT ONLY **9 PERCENT** OF SUBSISTENCE FARMERS HAD ACCESS TO THE INTERNET IN 2014.⁸ THIS MAKES FARMERS HIGHLY DEPENDENT ON INTERMEDIARIES TO MARKET THEIR PRODUCE. WITH LITTLE KNOWLEDGE OF FLUCTUATING MARKET PRICES, PRICE DISTORTIONS OCCUR.

In addition, with little transparency across the value chain it is hard to track food through all stages of production, processing and distribution to provide consumers with assurances that health, environmental and other standards have been met. And with no real-time insight into processes, errors, accidents and delays cannot be timeously identified, predicted or prevented.

LACK OF CREDIT TO SMALLHOLDERS



ONLY ABOUT **5 PERCENT** OF SMALLHOLDERS HAVE ACCESS TO FORMAL SOURCES OF CREDIT,⁹ WHILE 10 PERCENT TO 15 PERCENT OF RURAL SMALLHOLDERS SAVE AND BORROW THROUGH INFORMAL SAVINGS AND CREDIT GROUPS.¹⁰ COMBINED WITH THE LIMITED AVAILABILITY OF FORMAL INSURANCE SERVICES, CREDIT RISK AND THE COST OF TRANSACTIONS IS HIGH FOR SMALLHOLDER FARMERS. THIS HAMPER SUSTAINABLE GROWTH IN THE SECTOR.

New and innovative ways of assessing risk and new, affordable insurance models are needed.

In recent years, farm productivity has declined. This is partially due to migration of youth away from agriculture in search of better earnings. However, the efficiency in the agriculture sector is also low, due to:

LOW EFFICIENCY AND PRODUCTIVITY



A HIGH WASTAGE RATE—APPROXIMATELY **27 PERCENT** OF FOOD WASTAGE OCCURS IN THE PROCESSING AND PACKAGING STAGE.¹¹



PRODUCTION LOSS FROM STOCK THEFTS—THESE RUN INTO BILLIONS EVERY YEAR, WITH SOME PROVINCES LOSING ABOUT **20 PERCENT** OF THEIR AGRICULTURE SECTOR'S GDP TO STOCK THEFT.¹²

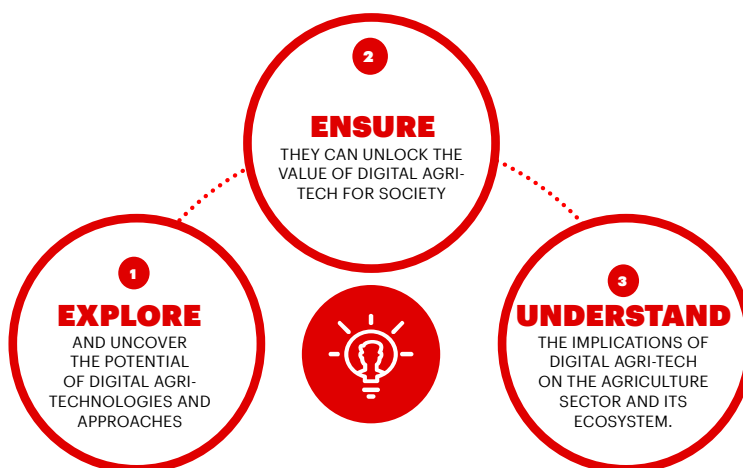
NEW AND EVOLVING CONSUMER DEMANDS

South Africa's increasing population density¹¹ and growing urbanisation is leading to a surge in food demand, particularly protein foods (and the feed to nourish them). Rising numbers of more health-conscious consumers also want increased transparency and traceability of the produce they consume, which today's agricultural sector is not able to provide.

SOLVING THESE CHALLENGES

There are any number of digital solutions that the South African agricultural sector can apply to address these five major challenges. However, a strategic response is needed to put in place the foundations necessary to create a productive, sustainable, modern agriculture sector.

To identify the right solutions—solutions that will help to establish an efficient, competitive and transparent digital supply chain—South African farmers and farming organisations must:



A strategic response is needed to put in place the technology foundations necessary to create a productive, competitive, digital age agriculture sector.

This journey starts with gaining an understanding of the capabilities and opportunities that digital agri-technologies present.

Use and application of digital technologies in the agricultural sector have advanced rapidly, with stakeholders across the agricultural value chain, from equipment and seed suppliers to insurers, finding ways to add value to their services and to the improve outcomes for their customers and partners. What is important to note is that that value increases exponentially for stakeholders, reaching up and down the value chain as it becomes more connected.

The Accenture and WEF value-at-stake framework⁵ identifies four important areas of digitalisation that can provide that connectivity. Together, these technologies can help shape an effective strategic response to the challenges the sector faces to strengthen the future of agriculture in South Africa.

DIGITAL TECHNOLOGIES AND APPROACHES

To bring the full benefit of digital agri-technologies to bear across the agricultural value chain, the Accenture and WEF value-at-stake framework⁵ identifies four areas of digitalisation that need to be explored:

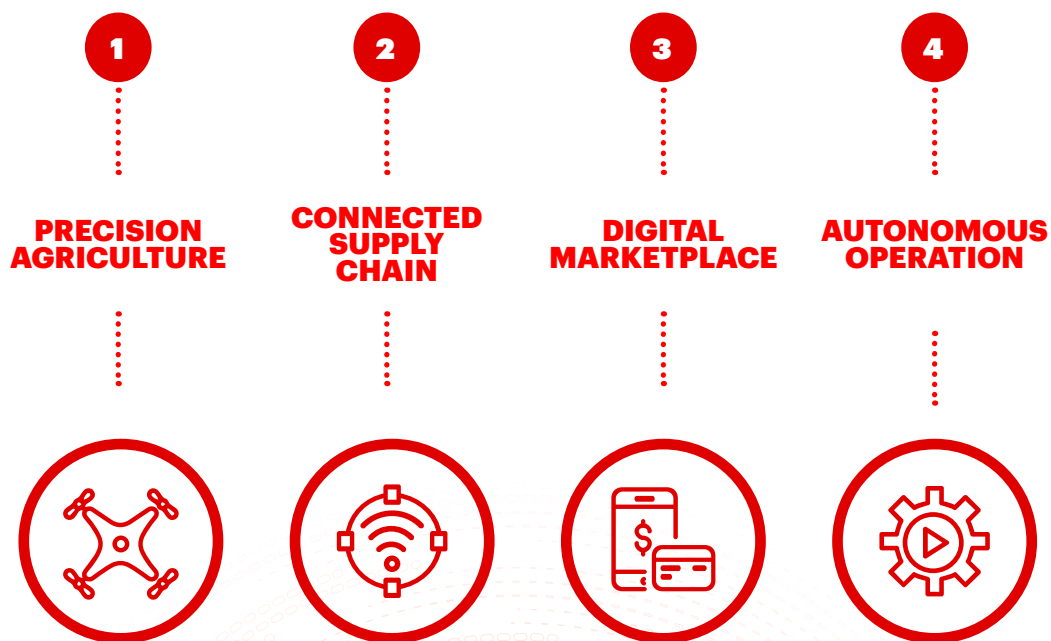
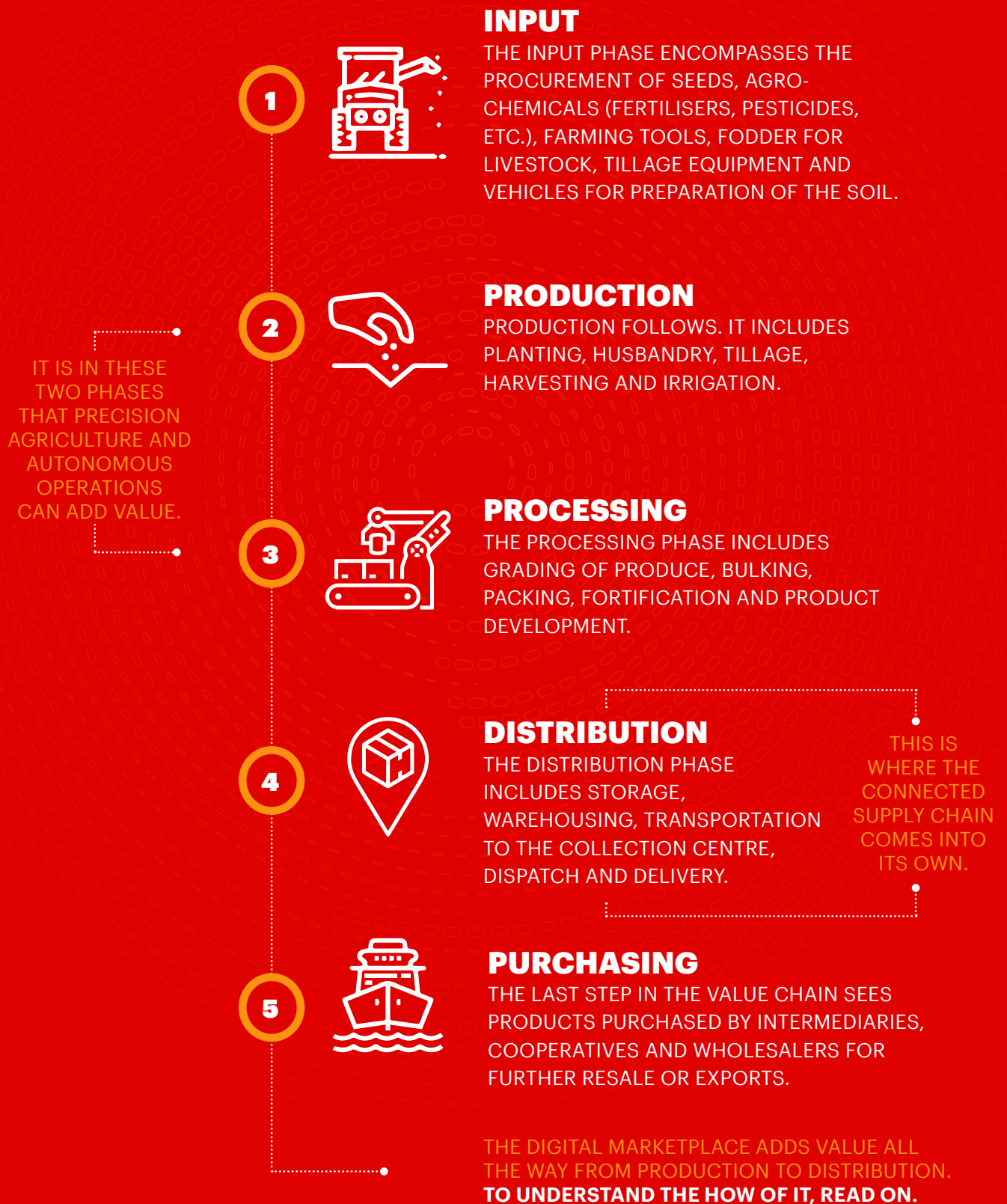


Figure 2 - Overview of digital themes

THE AGRICULTURE VALUE CHAIN COMPRISES FIVE PHASES



Precision agriculture, connected supply chain, digital marketplace, autonomous operation—these four areas of digitalisation can help South Africa shape an effective strategic response to strengthen its agriculture sector.



PRECISION AGRICULTURE

Precision agriculture uses sensors and technologies, such as geo-mapping, variable rate technology and drones combined with analytics to drive effective and efficient use of resources and ensure carefully measured and timeous responses to environmental and other changes. These technologies can, for example:

- Provide access to real-time information which drives smart decision-making on the ideal time for planting, spraying and harvesting.
- Evaluate the natural soil variability of a field and adapt inputs (disease and pest management, seed types, fertiliser, watering) to maximise yield and minimise wastage.
- Use sensors and drones for soil mapping to give farmers a better understanding of the variability in the soil profile across the field, unlocking inaccessible patches of arable land to increase outputs and yields.



CONNECTED SUPPLY CHAIN

A connected supply chain uses technologies such as radio frequency identification (RFID) tagging and sensors to monitor the movement of agricultural produce through the supply chain in real-time. It provides all stakeholders with visibility, helping to eliminate bottlenecks within supply chain processes. Sensors and connected devices help eliminate redundant processes and enable route optimisation, which translates into lower environmental impact, increased efficiencies and fresher produce to market. In addition, dynamic inventory monitoring leads to fewer occurrences of stock-outs, as delays and accidents are identified quickly or avoided altogether using predictive models.



DIGITAL MARKETPLACE

The digital marketplace offers farmers an information exchange and transaction platform that eliminates information asymmetry. It enables farmers to make informed decisions and deal directly with vendors and distributors rather than relying on intermediaries. Not only does digital marketplace provide easier access to agricultural inputs at better prices for farmers, but the transaction history of the farmers with other stakeholders also adds credibility to their revenue stream, facilitating easier access to credit. Asset sharing platforms can also enable access to technologically advanced equipment at affordable prices.



AUTONOMOUS OPERATIONS

Adoption of autonomous technology (e.g., self-driving vehicles and agri-bots for surveillance, harvesting or weed control) to automate manual tasks and time-intensive activities leads to an increase in productivity, yield optimisation and minimisation of human error.

Vehicles equipped with GPS, radar and sensors can navigate the terrain and reduce the quantities of inputs (seeds, herbicides, etc.) distributed over a field by accounting for variability across the land. They also add greater precision by, for example, eliminating double seeding. In addition, drones and automated machines are able to reach otherwise inaccessible fields of arable land, making more land available for cultivation.

UJUZIKILIMO TRANSFORMS FARMING IN KENYA

Creating a modern, knowledge-driven community

UjuziKilimo is a Kenyan agri-technology company that assists farmers with crop yield optimisation. It uses sensors to precisely capture soil and farm data, then combines this data with machine learning¹³ and big data¹⁴ analytics to generate insights. This enables UjuziKilimo to provide rural farmers in Kenya with real-time, actionable and comprehensible advice on fertilisers, seeds, weather and best practices.

Over the past three years, UjuziKilimo has helped over 200 rural farmers to achieve an average productivity increase of 36 percent. UjuziKilimo has also impacted over 1,000 people through direct and indirect employment opportunities.¹⁵ By offering an affordable solution—the package costs \$20 and farmers receive continuous recommendations for a \$6 annual subscription—smallholders can access the kind of information that only larger commercial farmers previously had access to.

DIGITAL TECHNOLOGY PROVIDES OPPORTUNITY TO UNLOCK VALUE

Precision agriculture, connected supply chain and digital marketplace, along with autonomous operation are the chief components of a modern digital agricultural sector. There are clear efficiency, productivity and competitiveness benefits to be had. However, adoption of these technologies will not occur without significant change.

In South Africa, the fear that digital technologies will bring more job losses than gains, negatively impacting the socio-economic wellbeing of individuals and the economy, needs to be addressed.

Failure to adopt these technologies will see the sector stagnate, become increasingly uncompetitive and fail.

As in every other sector, from retail to financial services and mining where automation and intelligent technologies are taking over mundane and repetitive tasks, jobs in the agriculture sector will change with the adoption of digital technologies and new jobs will be created that will allow humans to use their time, energy and creativity differently.¹⁶ Instead of being replaced by technology, humans will collaborate with technology to enhance their own productivity and ingenuity. To do so, humans will have to learn new skills relevant to the human-machine collaboration.

The benefits of the introduction of digital technologies to South Africa's agriculture sector can be quantified, providing the incentives the industry needs to move forward and actively unlock benefits for the sector and for society.

The Accenture and WEF value-at-stake framework⁵ quantifies the benefits that digital agri-technologies bring—it's a potential R671 billion incentive for the sector to move forward and actively unlock benefits.



THE VALUE FOR SOCIETY AND THE AGRICULTURE SECTOR

Digitalisation of the agricultural sector presents immense potential benefits for consumers, society and the environment. To unlock the potential benefits, stakeholders need to understand the real value that digital transformation of the agricultural sector in South Africa will bring.

To identify the themes, challenges and opportunities arising from the digitalisation of business, the World Economic Forum, in collaboration with Accenture, launched the Digital Transformation Initiative (DTI) in 2015⁵. As part of this initiative, Accenture developed a 'value-at-stake' framework, shown in Figure 3, to quantify the impact of digital transformation on industry and wider society.

The framework considers value to consumers and value to the industry, and introduces a new metric called the Digital Value to Society (DVS). The DVS aggregates the key performance indicators (KPIs) that relate to the impact of digitalisation on health and safety, employment, the environment and consumers.

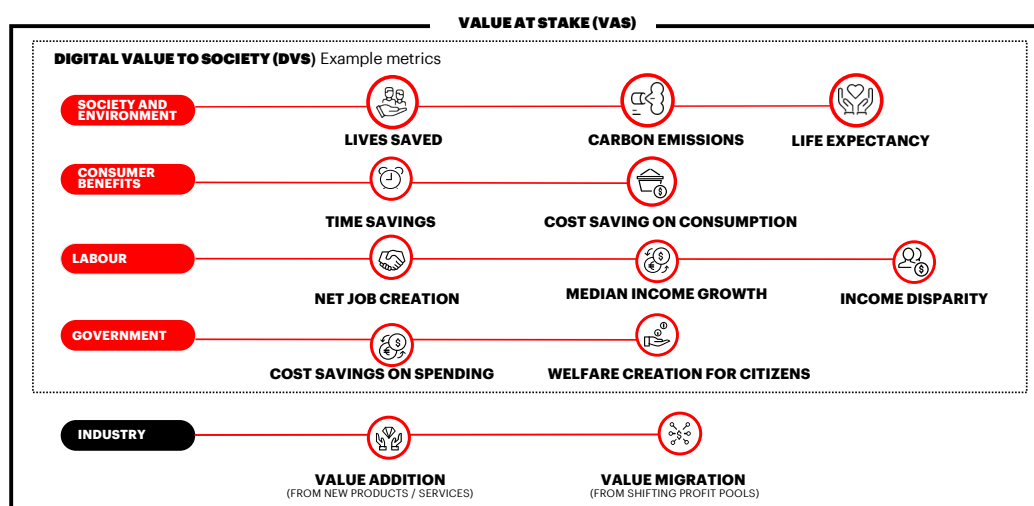


Figure 3 - DTI Value-at-Stake framework

The value-at-stake framework shows that, together, the four selected digital technologies have the potential to unlock value of R671 billion for the South African agriculture sector and society between 2017 and 2026. R136 billion, approximately 20 percent of that total

figure, will potentially be realised in 2026 alone.

The biggest value impact will be to the agriculture sector (Figure 4) but society stands to benefit significantly too.





		VALUE TO SOCIETY	VALUE TO CONSUMERS	VALUE TO AGRICULTURE INDUSTRY	TOTAL VALUE-AT-STAKE
		TOTAL DIGITAL VALUE TO SOCIETY: R 220bn			
	Discussed contributors	R 93.6bn	-	R 181.3bn	-
	Other contributors	R 6.4bn	R 2bn	R 23.7bn	-
	Total contribution	R 100bn	R 2bn	R 205bn	R 307bn
	Discussed contributors	-	-	R 66.0bn	-
	Other contributors	R 19bn	R 2bn	R 21.0bn	-
	Total contribution	R 19bn	R 2bn	R 87bn	R 108bn
	Discussed contributors	R 78.9bn	-	R 89.8bn	-
	Other contributors	R 1.1bn	R 4bn	R 1.2bn	-
	Total contribution	R 80bn	R 4bn	R 91bn	R 175bn
	Discussed contributors	-	-	R 64.5bn	-
	Other contributors	R 13bn	-	R 3.5bn	-
	Total contribution	R 13bn	-	R 68bn	R 81bn
TOTAL VALUE		R 212bn	R 8bn	R 451bn	R 671bn

Figure 4 - Value-at-Stake for selected initiatives in 2026²⁰

In this section, only the biggest contributors towards the value-at-stake are discussed for society, consumers and the agriculture industry. The value-at-stake generated by multiple other, smaller contributors, are indicated in a combined 'other' category.¹⁶

VALUE TO SOCIETY

Value to society is primarily driven by the introduction of **precision agriculture**. It offers society benefits such as reduced health costs as 8.0 million tonnes of CO₂ emissions are avoided, better access to, and availability of food with enriched nutrition content, and time savings for farmers due to increased productivity.

Younger, more tech savvy workers are also being attracted to the sector due to technological advancements. However, 145,000 jobs are at risk as tasks become automated and increasingly efficient. The sector can mitigate risk by taking a considered approach to reskilling, rethinking jobs and pivoting the workforce to areas that create new forms of value.

This brings the total value-at-stake for society from precision agriculture to R93.6 billion.

The development of **digital marketplace** could add another R78.9 billion to the value-at-stake to society. This results from an increase in GDP due to better access to credit for smallholders, and increased productivity due to the time farmers save from making a reduced number of trips to financial institutions and input suppliers.

VALUE TO CONSUMERS

The value-at-stake for consumers is relatively small as we expect that it is not likely that the savings realised will reach the consumer's wallet. Consumers could benefit from an expected 0.5 percent to 2 percent reduction in farmers inputs and intermediate costs, as well as from having access to knowledge regarding the source of their produce or meat. They are also likely to see an increase in the delivery of fresher and more nutritious food due to the increased availability of information on ideal conditions for crop growth (which increases yield) and the increased efficiencies in the supply chain, which shortens time to market.

AGRICULTURE SECTOR

The largest portion of the value-at-stake accrues to the agriculture sector itself.

Precision agriculture could contribute R90.7 billion to the value-at-stake for the agriculture sector by increasing yield. An additional R90.6 billion can result from intermediate cost reductions, totalling to R181.3 billion from precision agriculture. Higher output and yield can be obtained by planting the most suitable crop on the existing land, by introducing new areas of cultivable land through soil mapping, and through better monitoring of inputs and outputs. Optimal application of inputs as a result of factoring in soil variability across a field will enable farmers to save on input costs such as farm feed, fertilisers, water and electricity.

The connected supply chain could contribute an initial R27.2 billion to the value-at-stake for the agriculture sector. This value is derived by setting up control towers to enable better visibility across the supply chain to potentially lower inventory, logistics and labour costs. In addition to this, an increase in revenue realisation of R38.8 billion is expected since a price premium can be commanded for sustainable farming practices (validated through visibility) and fresher produce reaching the market. This means that the total contribution of connected supply chain is R66.0 billion.

The digital marketplace could contribute R45 billion to the value-at-stake for the agriculture sector by providing a platform to eliminate information asymmetry. This will reduce wastage, as well as information search costs previously incurred by farmers to collect information offline. The transaction platform could contribute a further R44.8 billion to the value-at-stake through digital procurement and payments between farmers, input vendors and distributors. This reduces input and transaction costs by eliminating intermediaries. The recording of past transactions also contributes to the value-at-stake as it gives farmers better access to credit at better interest rates from financial

services and other small loan and savings groups. These two contributors combined total to R89.8 billion of value from digital marketplace.

Lastly, autonomous operations could drive a cost reduction, adding R35 billion to the value-at-stake for the agriculture sector. Sensors on autonomous machines assist to optimise the application of inputs and lower the amount of labour required for supervision of previously manual tasks. In addition, a further R29.5 billion is added to the value-at-stake by an expected increase in productivity as automation drives a higher throughput of processes and makes new and inaccessible land available for cultivation through unmanned and/or aerial machines for planting, spraying and weed control. These contributors combined total to R64.5 billion of value from autonomous operations.

REALISING VALUE

Digital technologies are not a silver bullet to agriculture sector growth, they are an enabler that will help modernise the sector at a faster pace and address many of the challenges discussed.

However, to take the first steps toward realising the value at stake, the South African agriculture sector will need to overcome significant inhibitors to the adoption of digital technologies and transformation within the industry. They need to address a lack of awareness of the opportunities and benefits digital agri-tech brings, a lack of industry standards, lack of access to on- and off-farm infrastructure, skilled labour shortages, lack of connectivity in rural areas and a dearth of incentives to realise societal value.

The Accenture and WEF value-at-stake framework⁵ can, by making clear the value of the opportunity that digital technologies bring, incentivise business leaders and policy-makers to invest in initiatives that will help overcome these inhibitors and unlock the full potential of digital transformation.

TAKING ACTION – IMPLICATIONS FOR THE SECTOR AND ITS WIDER ECOSYSTEM

Successful implementation of digital agri-tech capabilities to generate all or part of the value identified by the value-at-stake framework⁵ will require a co-ordinated effort by all agriculture sector stakeholders—government, industry associations, businesses and ecosystem partners (Figure 5).

Each has an important role to play.

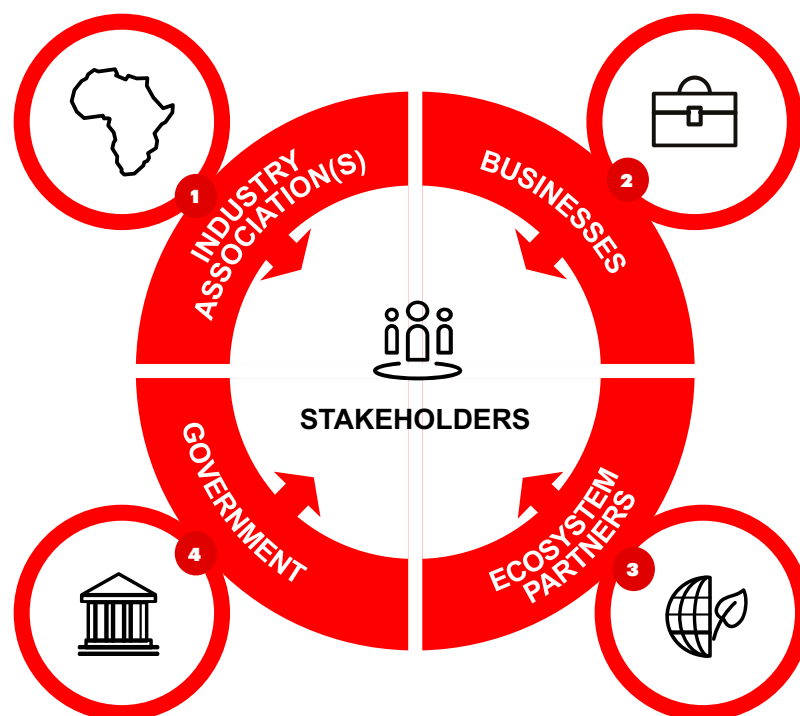


Figure 5- Agriculture sector stakeholders



INDUSTRY ASSOCIATIONS

With broad influence and a watchdog status, industry associations have the convening power to set up an empowered steering committee with representatives from all stakeholders—the farming community, government, regulatory entities and business—to strategise, encourage and monitor the adoption of digital agri-technologies.

Industry associations are also well placed to facilitate investment in digital skills training and development for farmers. A number of approaches can be applied to reach different communities with varying rates of literacy—e.g., visually enabled learning, collaboration with non-governmental organisations (NGOs) to introduce new digital approaches, and the funding of demonstration projects to pilot new practices and help scale up adoption of digital apps.

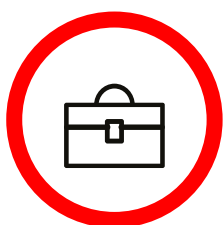
Lastly, industry associations have the unique opportunity to orchestrate pilots and run test cases for digital technology for their specific commodities. This can benefit original equipment manufacturers (OEMs) by helping them solve for real challenges faced during pilots in various regions and for various commodities. In addition, this can drive synergies and cross-farm learning in the wider agriculture sector.

AUSTRALIA'S NATIONAL FARMERS' FEDERATION (NFF)

is collaborating with Accenture to develop and deliver new digital technologies and services, which will help Australia's agriculture sector compete globally.

The NFF has launched the NFF Digital Agriculture Service. It comprises an online platform that gives growers access to vast quantities of data, as well as access to tools that supply real-time data to drive high performance farm management that generates higher yields and lowers input costs.

Watch what Accenture Digital Agriculture Service can do: <https://youtu.be/D1B8gZR1q9I>.



BUSINESSES

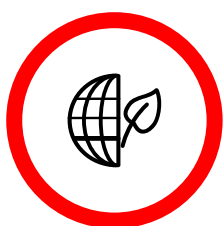
Established businesses and start-ups active within the agriculture value chain, whether suppliers of inputs, technology or services, have an enormous opportunity to adapt their value propositions to meet the changing demands of agriculture.

- By enabling a sharing economy, businesses can increase the affordability of technologies, leveraging economies of scale for greater benefits to farmers.
- By including the use of new technologies in incentive schemes for suppliers, business have the power to drive adoption.
- By supporting smallholder farmers with new technologies utilising their enterprise supplier development investments, and by formalising the entry of smallholders into their supply chains with connected solutions, business holds a key to growth.
- By introducing blockchain technologies and sensors for use by stakeholders across the value chain, distribution and processing businesses can help establish a connected supply chain, increasing transparency for end consumers and driving demand.

As technology change agents, businesses also have the opportunity to develop innovative digital technologies to maximise benefits (yield/time) for both smallholders and commercial farmers.

NIGERIAN SOCIAL ENTERPRISE 'HELLO TRACTOR'

is building a network of "Smart Tractor" owners, enabling small-scale farmers to request and pay for tractor services via SMS and mobile money, as a just-in-time service. Since its launch in 2014, farmers have seen yields rise by 200 percent.¹⁷



ECOSYSTEM PARTNERS

Players across the agriculture value chain can benefit from aligning their internal practices and offerings to the new digital era. By adopting a market place model that includes digital payments and procurement, ecosystem participants can improve settlement time and better structure transactions with farmers. Digitalised systems will also reduce information access costs and information asymmetry as products and services offered online can be continuously updated. But there is also the opportunity to innovate, offering combined services that are of value to farmers.

There is, for example, growing opportunity for financial services organisations to partner with technology players to gather data and develop new funding, credit and insurance solutions better suited to a digitalising agriculture sector.

TECH MAHINDRA

launched Fresh Produce End to End Digital Supply Chain (FEEDS) to enable companies to transport farm-grown produce and deliver it as fresh as if it was 'locally grown'.¹⁸ FEEDS transforms the fragmented physical supply chain into a connected intelligent digital supply chain with the ability to track and maintain freshness at each leg of the supply chain process. FEEDS enables business collaboration, maintains product quality and freshness while providing a 15-20 percent reduction in losses and wastes.



GOVERNMENT

Governments play a significant role in creating supportive policies to encourage and drive the digitalisation of the agricultural sector. These policies should include development of the necessary infrastructure, supporting access to key resources, and incentives to drive change.

- Policy interventions and support may include five-year targets focused on innovation and entrepreneurship, education and developing a hurdle-free environment, with incentives for business to improve their current farming models.
- By prioritising sector lending and introducing binding regulatory policies that enforce a minimum exposure to the agricultural sector for the commercial banks, government will enable greater and equal access to formal credit for all smallholders.
- Strengthening physical and digital infrastructure will help create seamless and reliable connectivity, while regulating prices and subsidies will support the affordability of advanced tools for smallholders and increase their positive reception.

PRADHAN MANTRI FASAL BIMA YOJANA

India's Government¹⁹ has set aside INR 200cr (~\$30 million) for creation of a National Agriculture Market online trading portal to tackle the problem of distress selling. In addition, under the Pradhan Mantri Fasal Bima Yojana, the government will only charge smallholders a premium of 2 percent of the sum insured for all Kharif (Rabi) crops. This provides great relief to smallholders who often rely on these crops as their main income.

THE WAY FORWARD

There is significant potential for growth in the South African agricultural sector through application of digital technologies and sustainable agricultural practices. However, it will require a consolidated and coordinated effort from all stakeholders.

The Accenture and WEF value-at-stake framework⁵ identifies four digital capabilities—namely precision agriculture, connected supply chain, digital marketplace and autonomous operations—which can together provide the potential to unlock value of R671 billion for the agriculture sector, society and consumers.

To begin to realise this value, a number of significant roadblocks need to be removed. In addition to driving awareness of the value of digital agri-technologies to encourage their adoption, industry standards need to be put in place and infrastructure gaps closed to facilitate adoption. Incentives need identified to encourage stakeholders to work towards realising the value that digital agri-tech can provide to society.

To successfully implement these four digital capabilities and generate value, there are three key next steps for stakeholders:

1

INDUSTRY ASSOCIATIONS

fund and support the testing of digital innovation use cases in the South African agriculture sector to drive adoption and create opportunities for large-scale implementation.

2

BUSINESSES

become technology change agents by actively seeking out partnerships in their ecosystem (e.g., with start-ups and universities) to develop proofs of concepts that can offer new value propositions tailored to the South African market.

3

GOVERNMENT

offer continuity by developing supportive policies and incentivise the adoption of digital agri-technologies by providing space to experiment and funding adoption by smallholders.

There are many questions still to be answered. How do we overcome the inhibitors to the adoption of digital technologies? Will these technologies prosper in our local conditions? What is the impact on the availability of jobs? How do we sustainably fund the implementation of these technologies? How do we cooperate across the industry to drive efficient adoption?

The answers are not always apparent. But the future trajectory of agriculture in South Africa will, by and large, be determined by how the country ensures access to digital technologies for all farmers. This is critical if this sector is to remain a significant contributor to the South African economy and our food security.

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Accenture Development Partnerships (ADP) delivers the power of Accenture’s global capabilities and experience to address complex social issues, positively impacting the lives of people in the developing world. ADP has leading agriculture experience with over 3500 skilled professionals working with agribusiness clients and over 250 completed agriculture focused projects. Working with Accenture’s Innovation Architecture, we solve complex farming problems innovatively and quickly get a prototype to market to test in-situ.

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