South African agribusiness at a crossroads

New approaches and technologies to grow farm enterprises

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Executive summary

South African agribusiness is at a crossroads. After decades of rising farm production, South Africa is still a hungry nation, with constant pressure on food security. The only way to address these food security challenges is through increased farm production without sacrificing sustainability. This, in turn, requires commercial farmers to look at new approaches and technologies for their operations.

In this document, we look at four approaches and technologies that will help South African agricultural businesses in growing their operations and increasing food production while supporting sustainability and operational efficiencies.

1 A family business constitution is vital to succession planning

Family-owned agribusinesses form the backbone of the South African farming sector. The most successful family businesses strike a balance between professional management and responsible ownership, while maintaining a healthy family dynamic. The relationships between family members, both those involved in the business and those who are not, can affect the management of the company in ways that simply do not exist in non-family businesses. One of these is the question of succession. Succession planning is perhaps the most critical and challenging decision for family business leaders. The foundation of an effective succession plan is the professionalisation of the family and the business. This involves documenting and embedding procedures, governance, systems, knowledge, experience, values and business relationships. Central to this process is the creation of a family constitution.

2 End-to-end farm management: where dirt and data intersect

While the sophistication of farming systems has increased in recent decades, it is still not uncommon to see South African farmers writing weather and crop notes on scattered pieces of paper. The second green revolution requires a new approach. Increasingly, agriculturalists will have to make real progress into the digital era. As dirt and data intersect, digital tools will provide solutions to some of the biggest challenges that agribusiness faces in the years ahead. End-to-end farm management is a comprehensive approach to managing all aspects of farming operations using integrated technologies and systems. The end-to-end management approach could include—but is not limited to—financial, resource and supply chain management; operational efficiency; sustainability and compliance; data collection and integration; as well as collaboration and communication with stakeholders.

3 Traceability: Farmers must collect data that food companies need

Farmers, food and beverage companies, and retailers are trying to assure the security, safety and quality of their food. Being able to track food and know its whole journey is as much an opportunity as it is a line of defence in good food safety management. Traceability is an opportunity for food companies (and their suppliers) to differentiate the quality of their products and gain a competitive edge through having more control and visibility over food supply. For farmers, the scope of data collection is wide, but data that major food companies could require include information on production, harvesting, processing, transportation, storage and sales. At present, traceability practices in South African agriculture leverage technologies like barcoding, Radio Frequency Identification (RFID) tags and blockchain, to track agricultural products from the farm to the consumer.

4 Impact measurement can help agribusiness tell their ESG story

South African agribusiness companies face increasing pressure from various stakeholders to assess and manage the impact they create on society. Quantifying impacts of economic, environmental and broader societal matters lends credibility and reinforces an organisation's value proposition to its diverse stakeholder base. An impact assessment using a Social Accounting Matrix (SAM) assists companies in understanding the direct, indirect and induced contributions to economic indicators such as GDP, job creation, poverty alleviation, tax revenue, social investment and emissions. In this ever-evolving world, impact assessments transcend necessity—they become an indispensable tool for responsible, thriving and resilient agribusiness organisations. Failure to provide robust and credible impact data can erode stakeholder trust and diminish an agricultural organisation's social licence to operate.

Introduction

South African agribusiness is at a crossroads. After decades of rising farm production, South Africa is still a hungry nation, with constant pressure on food security—a priority area for the new Government of National Unity (GNU).

Our people purchased less food in 2023 due to pressure on what their salaries and wages could purchase due to inflation. The only way to address these food security challenges is through increased farm production without sacrificing sustainability. This, in turn, requires commercial farmers to look at new approaches and technologies for their operations.

The first green revolution took place after World War II at a time of worldwide depression and starvation. The solutions to rapidly deteriorating global food security were found in new varieties of high-yielding cereal grains; distribution of hybridised seeds; synthetic fertilisers, pesticides and herbicides; modernised management techniques; and expansion of irrigation infrastructure. South African farmers remain at the forefront of these methodologies.

However, South Africa remains essentially a hungry nation. Up to 20 million of our people are severely food insecure. Last year, the volume of food and beverages sold per capita at grocery stores and supermarkets declined by more than 3%, as shoppers were pressured by weaker buying power.[1]

There is a clear need for increased food security both globally and locally. To achieve this, the government, the private sector, and labour and community organisations need to work together to develop and implement policies that support the growth in production and trade of agricultural goods.

Higher agricultural output is needed without compromising resources and sustainability in the process. This is where the second green revolution is critical. The second round of the global agricultural revolution is referred to as the science-based revolution and will be driven not by new techniques but new technologies.

It will focus on technological innovation and farmers acting proactively on real-time data through precision farming and other new approaches to their operations.

At PwC, we have a passion for agribusiness. Our involvement with and commitment to help solve the sector's challenges spans over many decades. We strongly believe in "'n boer maak 'n plan" [a farmer makes a plan].

Through this experience, we have identified four key solutions that we believe will support South African agricultural businesses in growing their operations and increase food production while supporting sustainability and operational efficiencies. These are:

- Creating a family business constitution to facilitate succession planning
- Implementing end-to-end farm management: where dirt and data intersect
- Collecting data at the farm level to help food companies with traceability
- Impact measurement to help agribusiness tell their ESG story

Please join us in exploring these topics.

Andrew Dale
Partner and PwC Africa Agribusiness Leader

1 PwC, 2024. Towards greater food security for our people: Precision agriculture, smart manufacturing, and retail planning can contribute to greater and more sustainable domestic food supply. https://www.strategyand.pwc.com/a1/en/assets/pdf/sa-economic-outlook/greater-food-security-for-our-people.pdf

A family business constitution is vital to succession planning

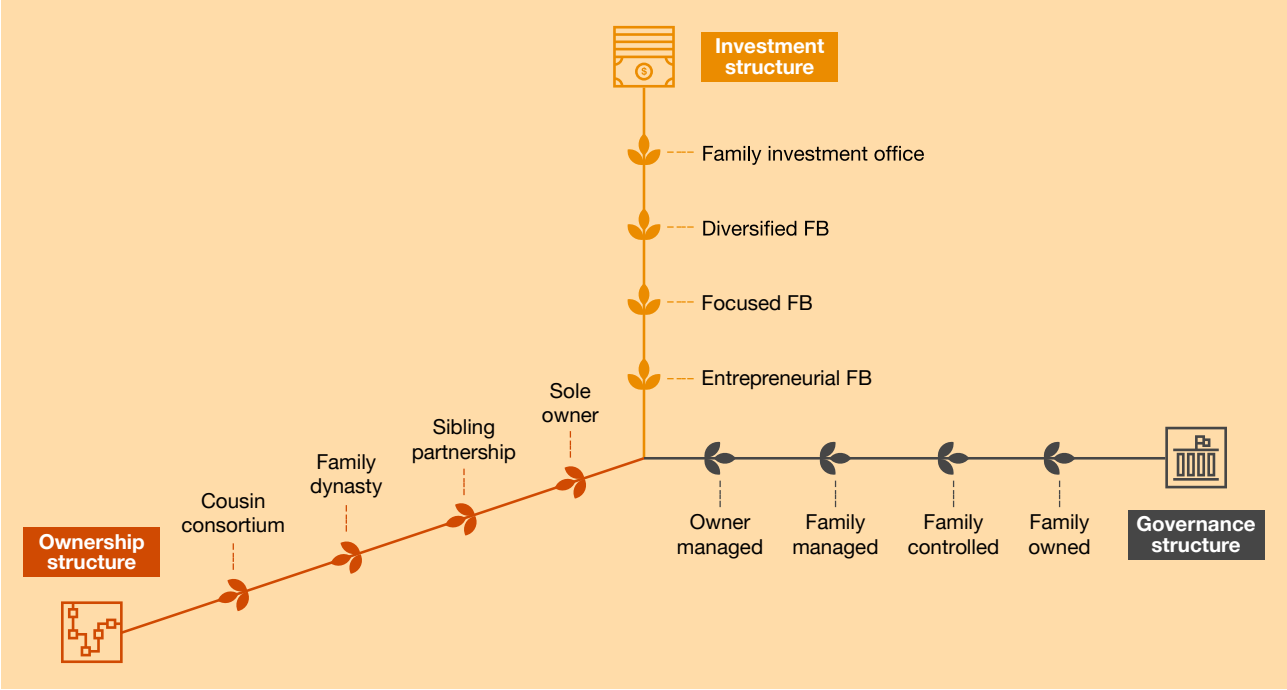
In South Africa, family-owned agribusinesses form the backbone of the farming sector, often passed down through generations. These businesses are built on strong fundamentals, characterised by unwavering commitment to values, long-term thinking and prudent financial management. Unlike other companies that measure success in quarterly terms, family businesses measure success in generations, ensuring the preservation of family values and legacy.

However, only 60% of family businesses survive into the second generation, and only 32% to the third generation.[1] The most successful family businesses strike a balance between professional management and responsible ownership, while maintaining a healthy family dynamic. Their success is based on overcoming several business challenges, including:

- **Establishing healthy governance:** Balancing family governance with professional corporate governance.
- **Succession planning:** Developing and communicating robust succession plans for smooth ownership transitions.
- **Leadership identification:** Timely identification and development of new leadership and future talent.
- **Open communication:** Ensuring transparent communication with the next generation.
- **Conflict resolution:** Effectively managing and resolving conflicts.
- **Financial management:** Protecting and growing investments and wealth, including securing funding and access to capital.

Each family business is unique and the ownership, investment and governance structures reflect where they are at, as well as understanding the challenges at each phase. The three-dimensions of family business ownership, investment and governance reflects the diversity of these forms.

Three dimensions of family business ownership, investment and governance[2]



1 Based on research by the INTES Family Business Academy, part of the PwC network.

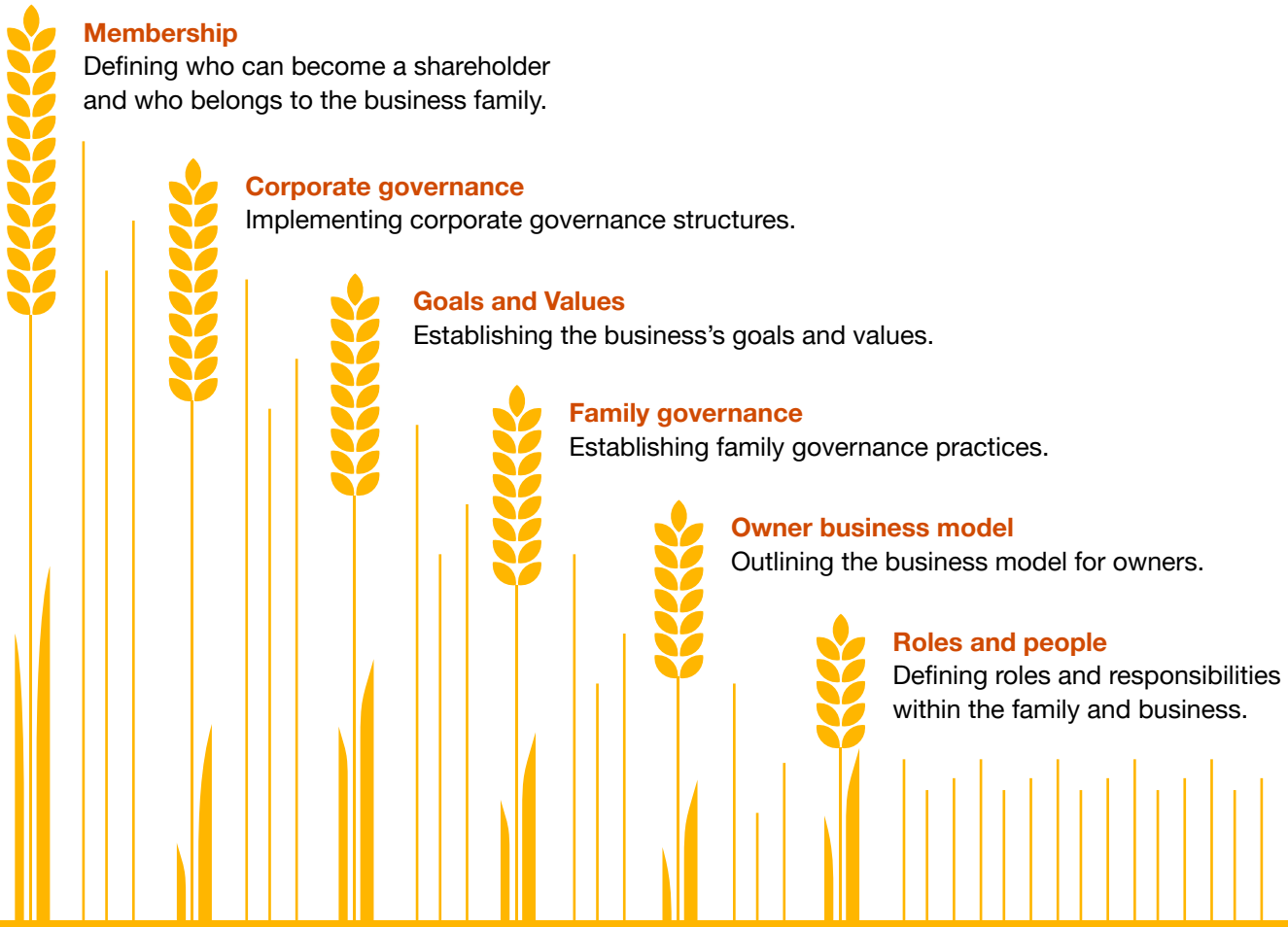
2 Adapted from Peter May's Three-Dimension-Model from "The Owner Strategy in a Family Business" (2017)

Professionalisation of the family and the business

The relationships between family members, both those involved in the business and those who are not, can affect the management of the company in ways that simply do not exist in non-family businesses. One of these is the question of succession.

Succession planning is perhaps the most critical and challenging decision for family business leaders. It involves more than just selecting the next generation of leaders; it also requires passing down relationships, expertise and experience. Effective succession planning is essential for the health and longevity of the business, ensuring it endures beyond the current generation and delivers a lasting legacy.

The foundation of an effective succession plan is the professionalisation of the family and the business. This involves documenting and embedding procedures, governance, systems, knowledge, experience, values and business relationships. Central to this process is the creation of a family constitution, which we assist families in developing through six modules:



Some of the critical questions which we advise families on are:

- Who can become a shareholder?
- How is the business family involved?
- What are the succession principles?
- How and when does the family pass on ownership?
- How to manage the increasing fragmentation of ownership?

By answering these questions, succession can be formalised, ensuring 'deep pockets and warm hearts"—meaning business continuity and success for future generations.

End-to-end farm management: where dirt and data intersect

Farming is one of the world's oldest occupations. For tens of thousands of years humans have been cultivating crops and tending to animals. And in the last century, significant progress has been made in commercial agriculture on the back of improved farm management. However, while the sophistication of farming systems has increased in recent decades, it is still not uncommon to see South African farmers writing weather and crop notes on scattered pieces of paper.

The second green revolution requires a new approach. Increasingly, South African agriculturalists will have to make real progress into the digital era as the population grows, people move further into urban areas, and as agriculture is forced to put a premium on environmentally sustainable practices. As dirt and data intersect, digital will provide solutions to some of the biggest challenges that agribusiness faces in the years ahead. This includes, for example, the need for new technologies to efficiently manage scarce water resources.

Like all industries, farming will increasingly require a new breed of businesses with lower overheads and leaner business models. Efficiency will be a key goal that digital solutions are poised to deliver, particularly when it comes to AgTech, precision farming and the ability to make more informed decisions. While sometimes viewed as the antithesis of digital, rooted as they are in soil and bone, farms have a long history of benefitting from, and driving technological advancement.

Drones, multispectral and satellite imagery are providing valuable information at a glance—for instance, whether a particular area or crop is unrecoverable and not worth spending further money on e.g. fertiliser, pesticides, etc. In a similar vein, the Internet of Things (IoT)—the connected network of sensors and internet-enabled technology—is making light work of mundane but critical farm maintenance. Being able to check the state of fences, machines, levels and health of water tanks, or whether a gate has been shut without manual inspection is just the start.

Over time, AI and machine learning will make these operational decisions autonomously.

Spotlight on Artificial intelligence (AI)

Agricultural production will increasingly be supported by technology like AI and big data, allowing farmers a more focused and precise application of inputs. This, in turn, increases productivity and, if used correctly, will reduce the environmental footprint. The underlying benefits of these technologies are that farmers can make informed and cutting-edge decisions.

Using AI and big data gives farmers a more focused and precise application of inputs such as water, light, fertiliser, pesticides and other soil treatments. AI also provides farm monitoring and pest management solutions, helping farmers see above their crops and below the ground where the naked eye cannot. AI can also be used for predictive analysis; for example, suggesting the time of sowing and scheduling irrigation.

AI and IoT are part of PwC's new Essential Eight technologies for businesses.

An operational process that manages all aspects of farming

End-to-end farm management is a comprehensive approach to managing all aspects of farming operations using integrated AgTech and systems. This approach aims to optimise efficiency, productivity and sustainability across the entire farming process.

From our perspective, end-to-end farm management is essentially a business operations concept not too dissimilar in its core components from the type of business operations that would be seen in many other industries. In the context of agribusiness, this kind of end-to-end management approach could include – but is not limited to – the following elements:

Financial management

- Budgeting and forecasting: Implement financial management software to monitor expenses, revenues and profitability. This includes tools for budgeting, forecasting and financial analysis.
- Risk management: Develop risk management strategies to mitigate financial risks related to market fluctuations, weather events and other uncertainties.

Resource management

- Precision agriculture: Implement precision farming techniques to optimise the use of water, fertilisers and pesticides. This includes variable rate technology (VRT) and GPS-guided equipment.
- Sustainability practices: Adopt sustainable farming practices to reduce environmental impact and comply with regulatory requirements.

Supply chain management

- Traceability systems: Develop systems to track produce from farm to market, ensuring quality and compliance with food safety standards. (See page 12).
- Logistics optimisation: Use logistics management tools to optimise transportation and reduce post-harvest losses.

Operational efficiency

- Automation: Utilise automation tools such as drones for crop monitoring and automated machinery for planting and harvesting.
- Workflow management: Implement software solutions to streamline scheduling, task management and record-keeping.

Sustainability and compliance

- Environmental monitoring: Use environmental monitoring tools to track and report on sustainability metrics such as carbon footprint, water usage and biodiversity.
- Regulatory compliance: Ensure compliance with local and international agricultural regulations through regular audits and reporting.

Data collection and integration

- IoT devices: Deploy devices and sensors to monitor soil moisture, temperature, crop health and weather conditions.
- Data analytics: Use advanced analytics to process and interpret data, providing actionable insights for decision-making.

Collaboration and communication

- Stakeholder engagement: Facilitate better communication and collaboration between farmers, agronomists, suppliers and other stakeholders through integrated communication platforms.
- Community involvement: Engage with local communities and stakeholders to promote sustainable development and social responsibility.

Traceability: Farmers must collect data that food companies need

Today's food supply chains are best described as a system of systems—a multilayered, opaque and dynamic system that lacks a verifiable view from farm to fork. That is why food risks and scrutiny have increased. We are now living in a world where our trust in food is being challenged.

As such, agriculture, food and beverage companies, and retailers are trying to assure the security, safety and quality of their food. Being able to track food and know its whole journey from the farm to the consumer is as much an opportunity as it is a line of defence in good food safety management.

Thousands of suppliers for one plate of food

When considering what is in a plate of food, it helps to understand that even simple products can have massive supply chains. For example, consider the humble hamburger with seven main components: beef patty, bun, sauce, lettuce, onions, cheese and pickle slices. These components are provided by several dozen direct suppliers, which can consist of some 90-odd ingredients (beef, flour, oil, milk, etc.), supplied by hundreds of secondary suppliers, coming from thousands more farmers and producers across the value chain.

The challenge for food companies (agriculture's biggest direct clients) is that while most have traceability systems in place, they are often incomplete and may not be able to trace food all the way back to the originating source (the farm). Most companies can trace one-step up or one-step down their supply chain. For example, they know who they bought food ingredients from, but they may be in the dark about the quality and testing systems in place at those companies and really unclear on those supplying their suppliers.

Traceability is an opportunity for food companies (and their suppliers) to differentiate the quality of their products and gain a competitive edge through having more control and visibility over food supply. It will reduce the risk of bad food getting to market and enable efficient recall and crisis management if the worst case scenario were to happen.

Capturing data, from planting to processing to sales

Scientific advances are creating a greater understanding of food health and safety and the early detection of hazards, while technological breakthroughs are helping improve standards and manage risk. These advances are opening up opportunities for companies to gather more information about the safety and quality of their food across the supply chain.

But what data do food companies want from farmers? The scope of data collection is wide, but key elements likely required by major food companies include data on:

- Production: Planting location, dates, seed varieties and crop management practices.
- Harvesting: Harvest dates, methods and yields.
- Processing: Processing steps, including any treatments or modifications.
- Transportation: Transportation methods, routes, and conditions.
- Storage: Storage conditions (temperature, humidity, etc.), durations and locations.
- Sales: Buyers, sales dates and quantities sold.

At present, traceability practices in South African agriculture leverage technologies like barcoding, Radio Frequency Identification (RFID) tags and blockchain to track agricultural products from the farm to the consumer. These systems enable farmers to oversee the entire production process and collect relevant data, from planting and harvesting to distribution, ensuring both transparency and accountability.

Spotlight on European Union (EU) Regulation on Deforestation-free Products (EUDR)

The EUDR requires companies (including those in South Africa) that import, trade or export certain products in the EU to ensure that these products are deforestation-free. The EUDR will come into effect on 30 December 2024 and is currently applicable to the following products and commodities: cattle, soy, palm oil, wood, cocoa, coffee, and rubber, as well as certain products derived from these like beef, leather, chocolate, printed books, tyres and furniture.

For South African agribusinesses, non-compliance with EUDR can lead to business disruption, such as a seizure or recall of the goods, as well as penalties, sanctions and public exposure leading to reputational damage.

Local companies will need to set up a due diligence system and the required governance structure to ensure compliance with the regulation on non-deforestation products. Steps that typically need to be taken to ensure compliance include, but are not limited to: supply chain mapping, a gap assessment for available data and processes, supplier engagement, human rights due diligence and compliance with the overarching legal requirements.

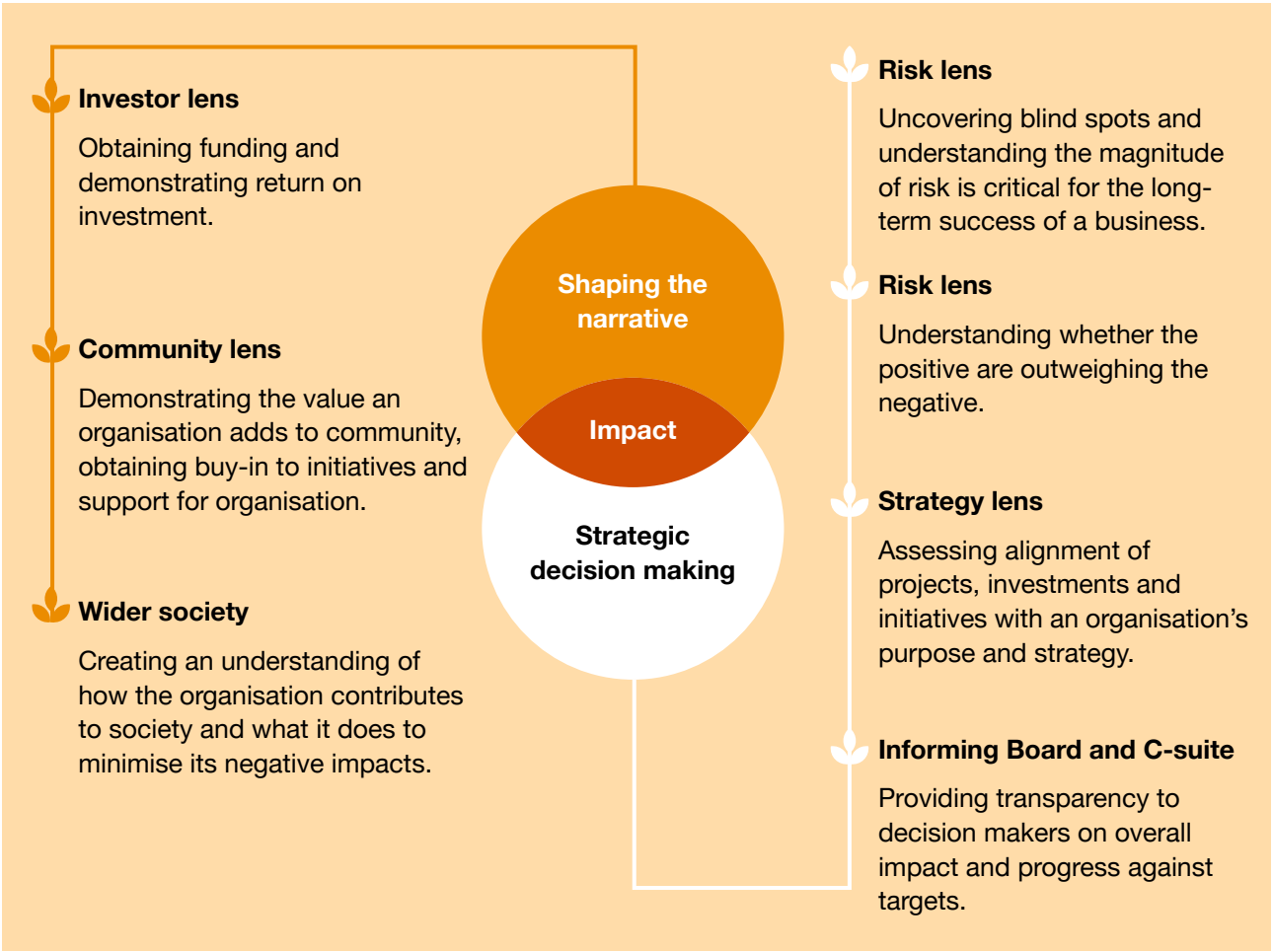
Impact measurement can help agribusiness tell their ESG story

Local businesses are increasingly expected by stakeholders to support an economic system in which value creation and increased growth improve the lives of individuals and the health of societies. By proactively addressing these issues and leading the way in responsible business practices, companies are not only fulfilling a moral responsibility but also ensuring their long-term success by aligning with societal expectations.

Agribusiness companies face increasing pressure from various stakeholders to assess and manage the impact they create in the environment and society at large. Stakeholders want to know, for example, how sustainable farming activities are, what power (renewable or not) is being used, if water resources are managed responsibly, and a myriad of other environmental and societal factors. Understanding these complex factors is crucial for South African agribusinesses in minimising negative effects and maximising positive contributions.

Quantifying impacts of economic, environmental and broader societal matters lends credibility and reinforces an agribusiness organisation's value proposition to its diverse stakeholder base. A pivotal benefit is the ability to enhance engagement with key stakeholders through transparent communication of positive impacts. By showcasing tangible positive contributions, agricultural enterprises can cultivate trust, credibility and goodwill among employees, communities and the broader public.

With heightened scrutiny and mounting pressures around environmental, social and governance (ESG) performance, agribusiness organisations must prioritise comprehensive and standardised impact assessments. Impact is defined as a change in an aspect of people's wellbeing or the condition of the natural environment caused by an organisation.



Spotlight on how a Socio-Economic Impact Assessment (SEIA) works

PwC makes use of a Social Accounting Matrix (SAM) to help quantify the socio-economic impact of investments and operations.

Incorporating client-specific data into the SAM, the SEIA captures these impacts by showing the interdependencies between different sectors of the economy. It assists companies in understanding the direct, indirect and induced contributions to economic indicators such as GDP, job creation, poverty alleviation (through household income), tax revenue, social investment and emissions.

The size of the added economic activity generated is measured by the multiplier effect. The different rounds of the multiplier effect, from the first spending by the company under analysis, through to the worker spending his/her salary on buying goods and services (and its resultant effects), is then estimated as the direct, indirect and induced contributions that the business makes to the economy.

It will, for example, analyse how this investment affects other sectors of the economy and how the impacts are distributed.

In this ever-evolving world, impact assessments transcend necessity—they become an indispensable tool for responsible, thriving and resilient agribusiness organisations. Failure to provide robust and credible impact data can erode stakeholder trust, hinder access to sustainable financing opportunities and diminish an agricultural organisation's social licence to operate.

These measurements are also a valuable tool to demonstrate openness about both positive and negative impacts on critical areas such as climate change, job creation, access to medicine, human rights or clean water availability. Impact assessments take organisations beyond compliance and risk reporting as the data and insights act as a strategic compass and strengthens their licence to operate.

PwC South Africa agri capability statement

PwC's New Equation focuses on two interconnected needs that organisations face in the coming years: building trust across a wide range of areas that are important to stakeholders and delivering sustained outcomes in an environment where the risk of disruption is more intense than ever before.

Our key subject-matter experts

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Andrew Dale | Partner

Africa Agribusiness Leader, Assurance

Duncan Adriaans | Partner

Africa Private Company Sector Leader, Assurance

Wiebe Van der Laan | Partner

Deals and Corporate Finance, Advisory

Retief Ferreira | Partner

Supply Chain, Advisory

Dave Ives | Partner

Data & Analytics/Microsoft Lead, Advisory

Lullu Krugel | Partner

Africa Sustainability Platform Leader and South Africa Chief Economist

Louis du Plessis | Associate Director

Tax

Agriculture areas of expertise

- Agri-inputs, sugar, grains, pulses, fruits and vegetables
- Livestock, meat/alternatives
- Wine
- Plantations, forestry/carbon markets
- Trading
- Packaged goods and beverages

Main offerings

- Strategy
- Deals and Mergers and Acquisitions (M&A)
- Tax
- Data & Analytics
- Supply Chain
- Environmental, social, and governance (ESG)
- Family business governance and succession planning
- Customer experience

Main themes

- Organic farming
- AgTech and precision agriculture
- Reducing food losses
- Regulatory change
- Environmental, social, and governance (ESG)
- Family business governance
- Business strategy
- Food sustainability, circularity and waste

Key thought leadership

The Sustainable Food Revolution: Future-proofing the world's food supply

In this report, we review options to improve food sustainability by influencing diet choices at the consumer level, pricing for the true externalities of non-sustainable food, ways to minimise food loss across the entire value chain by leveraging advanced technologies, as well as the application of the latest farming and food production techniques.

Africa NextGen Survey 2024

The 2024 edition of PwC's Africa NextGen Survey is a market survey that explores the vital role family businesses play in Africa's economy, marked by their resilience and unique blend of personal and professional management.

PwC's Voice of the Consumer Survey 2024

Trust is crucial for consumers and for the companies that sell products and services to them: as shoppers confront a set of overlapping and often mutually reinforcing disruptions—financial, ecological and technological—they are prioritising reassurance and reliability from the brands they engage with.

Contacts

PwC's Our Humanity strategy is a catalyst for positive change and societal impact on the African continent. It's about recognising that we're all interconnected—and that our shared humanity is the driving force behind everything that we do.

At its core, Our Humanity embodies our societal purpose—a holistic approach that leverages our community of solvers to build trust and deliver sustained outcomes. However, we're only half the story. Our philosophy emphasises collaboration and diverse contributions. By adopting this mindset, we're dedicated to creating positive change and making a meaningful difference.

For agribusiness, PwC's Our Humanity strategy aims to create a supportive and collaborative environment that can drive significant advancements in agriculture and food security, benefiting both our people and the planet. Recognising the value of diverse contributions means that a wide range of perspectives and expertise can be brought to the table. This diversity can lead to more innovative and effective agricultural solutions that are tailored to the unique needs of South African agribusiness.

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