Agriculture, Aquaculture & Fishing

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SOUTH AFRICA

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AGRICULTURE, AQUACULTURE & FISHING

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Agricultural technology, better known as AgriTech, is the use of modern technology to improve agricultural processes.

AgriTech has changed the way many agricultural businesses worldwide operate as it has the ability to improve the efficiency, productivity and sustainability of agricultural processes. AgriTech plays a role in food security, climate change, resource allocation and management.

While innovations in AgriTech offer immense potential, they also introduce complex legal challenges, which have also been examined by our courts.

The use of AI in agriculture

Artificial intelligence (AI) has been increasingly embedded in AgriTech solutions. AI can assist agricultural businesses in decreasing their costs and improving their yields through the analysis of vast amounts of data.

Al has been used to analyse data from sensors, drones and weather stations to provide real-time recommendations on irrigation, fertilisation, crop rotation and pest management. Machine learning models can be programmed to advise on ideal harvesting and planting times. Furthermore, Al is able to study soil conditions and provide warnings when water levels fall below the desired level or the soil conditions are not optimal for a specific crop. The use of AI in AgriTech extends to automated farming machinery, which is useful when there is a labour shortage. AI is also able to monitor livestock health through the use of image recognition and sensors.

The application of AI in AgriTech is limitless, however, there are legal and regulatory challenges which must be addressed. For example, the issue of data ownership may arise – is it farmers, technology providers or third parties who own or control data? Some manufacturers assert that farmers control the data, however this is not universal.

The use of AI introduces liability and accountability considerations. For example, if an AI system provides incorrect recommendations (e.g. incurred pesticide application rates), it is often unclear whether liability rests with the farmer, the software developer or the data provider. Farmers often bear the legal risk, however, there is an expectation that software developers also ensure accuracy and reliability.

Intellectual property considerations

When implementing or developing AgriTech, it is essential to understand data and technology ownership. This may be relatively simple where you obtain a license to use the software. In these cases, the person who grants the license is usually the owner of the intellectual property. However, the question often arises where bespoke or custom software is developed, and it is necessary to determine who owns the software.

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In the case of *Bergh and Others v Agricultural Research Council* [2020] 2 All SA 637 (SCA), the ownership of the copyright in a computer program called BeefPro was disputed. BeefPro is a cattle/herd management tool. The Agricultural Research Council (ARC) claimed ownership of BeefPro on the basis that the system was developed under its control and as a part of its statutory duty. However, Mr Tim Pauw, a software developer, claimed that he was the owner of the system as he brought his own skills and experience to develop the software.

The Copyright Act 98 of 1978 defines the author of a computer program as the person who exercised control over the making of the computer program, unless it was made in the course of employment or under the direction and control of the state. The Supreme Court of Appeal found that BeefPro had been independently developed, with no supervision from ARC. It was also found that draft agreements contemplated that the copyright would not belong to ARC. This contributed to the Supreme Court of Appeal's finding that ARC did not own BeefPro.

This judgment illustrates the importance of clear contractual agreements regarding intellectual property rights, where an independent contractor or an employee develops AgriTech for a business.

The ownership of the intellectual property will have a ripple effect as the owner has the right to use, licence and sell the software. Software development agreements are drafted with this principle in mind.

Blockchain use cases

Blockchain is secure, immutable digital ledger technology, which can be used in AgriTech to improve the traceability and transparency of supply chain information. Blockchain can allow products to be traced from farm to table. This can be used to trace the sources of food-borne illnesses and can also trace which stores have these foods in stock.

For example, in department stores in the US, blockchain technology is used to assist in identifying the origins of leafy green vegetables to trace the source of E. coli outbreaks. An E. coli outbreak was linked to romaine lettuce and affected 62 individuals across the US. Blockchain technology allowed for the quick identification of the source of the outbreak.

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Companies such as Nestle and Carrefour currently use blockchain to provide traceability for products. Consumers can access detailed product histories via QR codes. However, blockchain technology poses a risk in terms of applicable privacy laws i.e. its transparency and immutability. This conflicts with privacy laws such as the General Data Protection Regulation which mandates the *"right to be forgotten"*. Furthermore, if personal data is stored on a public blockchain, it may be accessible by unauthorised parties, potentially breaching applicable privacy laws.

Conclusion

The agriculture, aquaculture and fishing sector is ripe for innovation, with significant advancements already having been made. A strategic legal approach that anticipates risks, protects data, consider intellectual property ownership and ensures compliance must be thoroughly considered when choosing to adopt and contract for AgriTech.

Tayyibah Suliman, Izabella Balkovic, Sadia Rizvi, and Pebetsi Letsaolo



Legal500 2025 Cliffe Dekker Hofmeyr

OUR TFAM

For more information about our Agriculture, Aguaculture & Fishing sector and services in South Africa, Kenya and Namibia, please contact:



André de Lange Sector Head:

Agriculture, Aguaculture & Fishing Director: Corporate & Commercial T +27 (0)21 405 6165

E andre.delange@cdhlegal.com



Sammy Ndolo

Managing Partner | Kenya T +254 731 086 649 +254 204 409 918 +254 710 560 114

E sammy.ndolo@cdhlegal.com



Tessa Brewis Director:

Corporate & Commercial T +27 (0)21 481 6324 E tessa.brewis@cdhlegal.com



Director:

Real Estate Law T +27 (0)11 562 1771 E alex.dewet@cdhlegal.com



Petr Erasmus

Director: Tax & Exchange Control T +27 (0)11 562 1450 E petr.erasmus@cdhlegal.com



Simóne Franks Director:

Real Estate Law T +27 (0)21 481 6464 E simone.franks@cdhlegal.com



Allan Hannie

Director: Corporate & Commercial T +27 (0)21 405 6010 E allan.hannie@cdhlegal.com



Andries Le Grange

Director: Competition Law T +27 (0)11 562 1092 E andries.legrange@cdhlegal.com

Sentebale Makara

Director: Dispute Resolution T +27 (0)11 562 1181 E sentebale.makara@cdhlegal.com



Richard Marcus

Dispute Resolution T +27 (0)21 481 6396 E richard.marcus@cdhlegal.com

Martha Mbugua

Partner | Kenya T +254 731 086 649 +254 204 409 918 +254 710 560 114 E martha.mbugua@cdhlegal.com

Burton Mever

Director: Dispute Resolution T +27 (0)11 562 1056 E burton.meyer@cdhlegal.com



Lydia Owuor

Partner | Kenva T +254 731 086 649 +254 204 409 918 +254 710 560 114 E lydia.owuor@cdhlegal.com

Lucinde Rhoodie

Director: Dispute Resolution T +27 (0)21 405 6080 E lucinde.rhoodie@cdhlegal.com

James Ross



Corporate & Commercial T +27 (0)21 481 6424 E james.ross@cdhlegal.com



Belinda Scriba

Tayyibah Suliman

Sector Head:

Director: Dispute Resolution T +27 (0)21 405 6139 E belinda.scriba@cdhlegal.com



Technology & Communications Director: Corporate & Commercial T +27 (0)11 562 1667 E tayyibah.suliman@cdhlegal.com



Alistair Young

Director: Corporate & Commercial T +27 (0)11 562 1258 E alistair.young@cdhlegal.com

Alecia Pienaar



Counsel[.] Environmental Law M +27 (0)82 863 6279 E alecia.pienaar@cdhlegal.com



Liëtte van Schalkwyk Senior Associate: Dispute Resolution T +27 (0)11 562 1686 E liette.vanschalkwyk@cdhlegal.com



Associate Designate:





Corporate & Commercial T +27 (0)21 481 6334 E luyolo.mfithi@cdhlegal.com







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JOHANNESBURG

1 Protea Place, Sandton, Johannesburg, 2196. Private Bag X40, Benmore, 2010, South Africa. Dx 154 Randburg and Dx 42 Johannesburg. T +27 (0)11 562 1000 F +27 (0)11 562 1111 E jhb@cdhlegal.com

CAPE TOWN

11 Buitengracht Street, Cape Town, 8001. PO Box 695, Cape Town, 8000, South Africa. Dx 5 Cape Town. T +27 (0)21 481 6300 F +27 (0)21 481 6388 E ctn@cdhlegal.com

NAIROBI

Merchant Square, 3rd floor, Block D, Riverside Drive, Nairobi, Kenya. P.O. Box 22602-00505, Nairobi, Kenya. T +254 731 086 649 | +254 204 409 918 | +254 710 560 114 E cdhkenya@cdhlegal.com

NAMIBIA

1st Floor Maerua Office Tower, Cnr Robert Mugabe Avenue and Jan Jonker Street, Windhoek 10005, Namibia PO Box 97115, Maerua Mall, Windhoek, Namibia, 10020 T +264 833 730 100 E cdhnamibia@cdhlegal.com

STELLENBOSCH

14 Louw Street, Stellenbosch Central, Stellenbosch, 7600. T +27 (0)21 481 6400 E cdhstellenbosch@cdhlegal.com

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