# Case Study

# Farm to Plate

**Blockchain in Provenance & Tracking**

## Client Information

A Montana-based tea company sourcing and distributing the yerba mate tea leaves from Argentina and Peru around the Amazon Rain Forest.

Farm to Plate

www.farmtoplate.io

HYPERLEDGER GENERAL MEMBER

THE LINUX FOUNDATION

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001:2015

Case Study

# Provenance & Tracking for Tea Leaves Sourced in South America

## Tea Company

**SOLUTION**

Blockchain

**VERTICAL**

Food, and Beverage

**FUNCTION**

Provenance & Tracking

## Background

The client is a Montana-based company sourcing and selling tea made of yerba mate leaves grown found in parts of the South American rainforest. In the U.S the drink made from the leaves is often a substitute for coffee drinkers that provides a more balanced energy boost. The company currently sells three varieties sourced from Argentina, including organic, premium organic, and pure leaf. The product is sold in retail stores and also in leading eCommerce platforms like Amazon. The company sources the leaves from socially conscious producers and promotes environmental stewardship, education, and healthcare for its partners in Argentina and in the U.S.

## Problem Statement

The founder and owner of the company is a proponent of responsible sourcing and wanted to extend transparent sourcing information to the consumer of the drink to build deep customer trust and relationships. The client wanted to explore a way to show where the yerba mate leaves are sourced from, and the entire journey of the packet from the origin to destination to the consumer. The information & data needed to be accurate, trustworthy, and accessible easily to all the stakeholders engaged - from the growers to the consumer.

# Approach

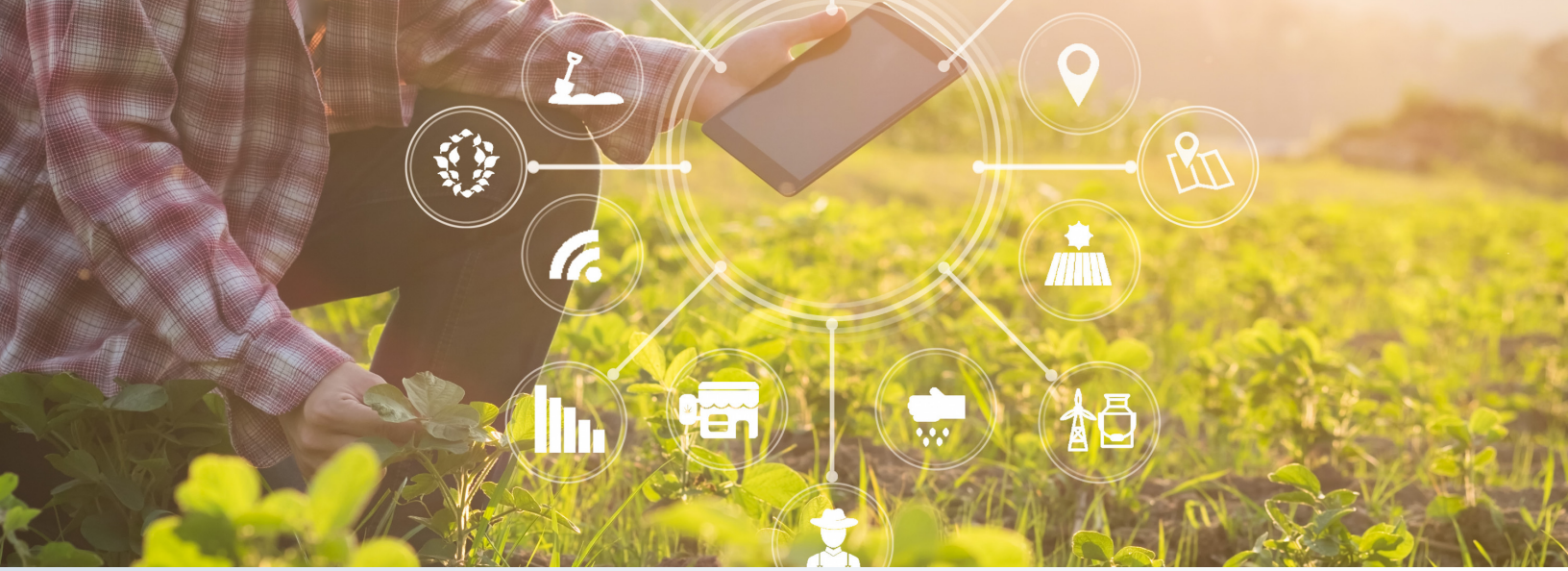
Based on the desired goal of the client, it was determined that the Farm to Plate platform would have the ability to provide tracking of the leaves from the point of picking (gathering), transporting to the facility for drying, the point of milling, and shipping journey to the client's distribution facility. The solution would also have the capacity to provide information on the locations the product has been to, the handlers, the environment including temperature, humidity, weather conditions, etc. The Blockchain use case in this PoC would be that of the ability to ensure the information would be accessible to all the stakeholders in the cycle for transparency and traceability. Additionally, the entries in the system would be secured and immutable to meet the need of providing trustworthy data/information.

# Solution

The Paramount Blockchain team determined the best way to help the client achieve the goal would be to utilize Farm to Plate, which will allow for tracking of picked bundles of tea leaves utilizing RFID tags. Each bag will have to be individually tagged with an RFID chip or a tag and the information would be recorded on an immutable ledger.

For each progress on the processes, the tea leaves would be assigned new RFID tags for the respective process, and the roll-up information captured and recorded. During the drying process, multiple bundles could be rolled into one single RFID tag and during milling again multiple batches rolled into a single RFID tag associated with a large container for shipping.

Upon reaching the final distribution center the larger containers would be separated out into smaller bags for delivery to customers. At this point, an individual QR Code could be placed onto the bag so that a consumer can scan the QR code and access a webpage that shows the life cycle of the tea leaves that make up the particular bag of tea that has been purchased.



## Tools & Technologies

The client provided 3-month data on the entire process. A custom IoT device was created to gather geographical information along with temperature and humidity for a few sample bundles. These devices were used in the field to capture the information when an RFID tag is placed into the initial bag of picked raw tea leaves. This information was then sent to the server for recording on the ledger for a permanent record. The tea leaves progress data was used to process additional information and was gathered along the way again. The data on the drying process was captured, temperature, and humidity throughout the process, and the date when it was finally milled (typically a year later) was recorded on Farm to Plate. RFID played a vital role, with the bags/bundles of tea leaves being marked with this technology and Hyperledger Fabric used to record the information would be immutable to keep a pristine record of the information. This information would be available to the stakeholders and they would have information of all the other players engaged in the process and had the assurance that it was not manipulated post the process. And finally, for displaying to the end-user the tracking information, a web application was built to allow for entering a Bag ID or be able to scan the QR Code which will provide the information about the product's life cycle.

## Conclusion

The client at this point in time is working on establishing a robust IoT system using the recommended RFID technology, including sensors and tags in the remote areas of South America where the sourcing is done from. The client has confirmed that Blockchain technology is the most relevant, apt, and trusted way to establish the provenance and tracking he was aiming to implement, and Farm to Plate would an ideal track and trace solution that could be easily implemented in their existing infrastructure. The client has assured that it would continue to work with the team while the backend functionalities are being enhanced to suit their systems, the client's suppliers are working on IoT devices to be attached to packages.

farm to Plate

For more information on developing a PoC for solving your business problems reach out to us at
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