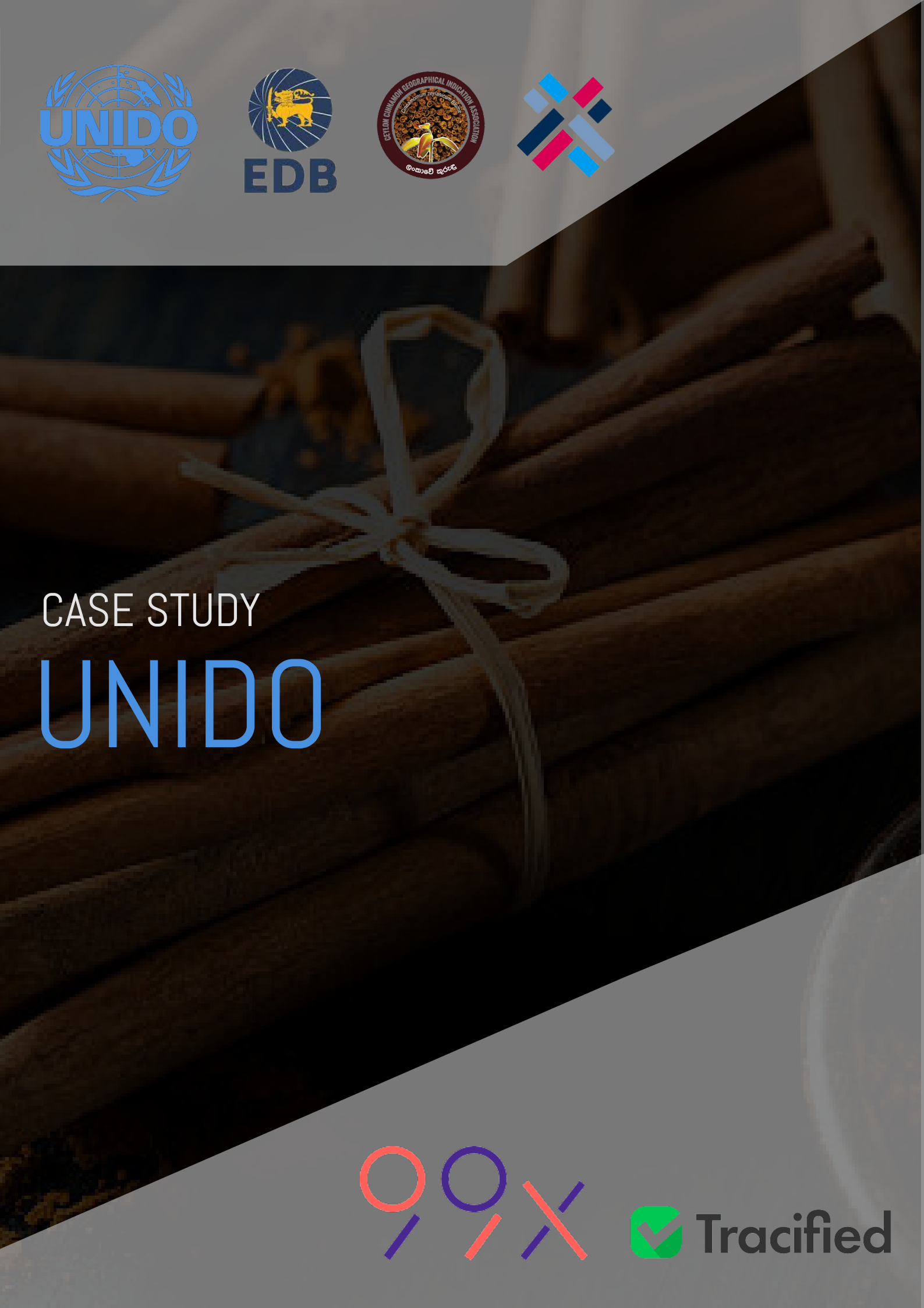


CASE STUDY

UNIDO

In partnership with ITC, UNIDO is introducing the EU-Sri Lanka Trade-Related Assistance program. The goal of the project is to improve the productivity of small and medium-sized enterprises (SMEs) in the regional and European Union (EU) markets in terms of trade. Support for the establishment of a Geographical Indication (GI) System for Sri Lanka with a pilot case for Ceylon Cinnamon is part of the program. With this in mind, a project to introduce a digital traceability mechanism for cinnamon farmers for their crops and their value-added products has been undertaken to ensure that the sequence of stages and operations involved in the production, processing, distribution, and handling of feed and food, from primary production to consumption, is traceable. The digital traceability platform also allows the country to be compliant with the Ceylon Cinnamon GI Association (CCGIA) GI certification. This digital system also supports the information and records of the quality and food safety of cinnamon products covered by the GI. This system is the tool to implement an Export Assurance Mechanism.

This digital traceability system, allows farmers, distributors, exporters, customs, importers, and end-customers to view, trace, and verify the information gathered during all stages of Sri Lankan cinnamon production. It also gives all stakeholders the ability to mitigate quality concerns and cope much easier with product recall/damage incidents.

Problem

Ceylon Cinnamon (Cinnamomum Zylanicum) is a native plant to Sri Lanka grown and produced in Sri Lanka holds the biggest share in the market and acquired a huge reputation in the international market due to its uniqueness and quality. The Ceylon Cinnamon belongs to the family Lauraceae and it has around 250 species and subspecies.

'Ceylon Cinnamon' and Cassia are the main spices that are traded in the international spice market. Cassia's origin has different sources such as China, Vietnam, Indonesia, India, and the Java region. 'Ceylon Cinnamon' is known as "sweet cinnamon" and "true cinnamon" is considered to be superior to the variety known as Cassia. Although Cinnamon has its own uniqueness over Cassia, the appearance of cinnamon and cassia are very much similar and it results in misunderstanding Cassia as Cinnamon.

Over consumption of Cassia can also lead to various health issues whereas Cinnamon is widely used for medicinal purposes as well.

To avoid this type of confusion/misunderstanding the Geographical Indication (GI) is used on products that have a unique geographical origin and qualities that are specific to that origin.

Furthermore, UNIDO is lacking a solution for cinnamon farmers for their crops and their value-added products which will ensure the traceability of the sequence of the stages and operations involved in the production, processing, distribution, and handling of feed and food, from primary production to consumption and also to comply with GI certification for the Ceylon Cinnamon GI Association (CCGIA) for the country.

Solution

In the Supply Chain Cinnamon farming and exporting has plenty of different parties. This could be varied for each exporter based on the scale of their business. However, a basic Cinnamon supply chain will compromise the farmer, processing technician, collector, sorting technician, packaging and exporter. For Cinnamon exportation in Sri Lanka to implement traceability, there will be several main stakeholders. The identified stakeholders as mentioned below will have a specific web portal for viewing and entering data whenever it's necessary and needed.

1. **Authority / Administration** - Identified as EDB or the Cinnamon organization incorporated. Will be referred to as 'Admin', in the document.

2. **Process roles**
    - Farmer
    - Processing Technician
    - Collector
    - Sorting/Grading Technician
    - Packaging
    - Exporting

3. **Importing authority at EU / Customs**

Each element of a traceability system has been designed considering the following objectives to be accomplished; CCGI Control Plan, CCGI products and/or ingredients, position in the process or value chain, flow of materials, information requirements by the control plan, CCGIA, External and Internal controllers, procedures instructed and documentation required by the CCGIA. The roles residing under the Cinnamon Supply chain will be responsible for entering the necessary related data into the traceability portal.

Role	Responsibility	Traceability Data Entered
Farmer	Seeding, Plantation, Harvesting	**Data entry using Tracified Officer App** • Enter Plantation Date • Enter Batch Id & Identification No • Enter geo coded images • Enter Age of Tree (optional) • Enter source of seed (optional) • Enter Quantity
Processing Technician	Peeling, Quilling, Making Cinnamon Pods	**Data entry using Tracified Officer App** • Enter geo coded images (optional) • Starting of process • Enter name of technician
Collector	Collection and Sorting (Optional)	**Data entry using Tracified Officer App** • Enter geo coded images • Enter Weight • Enter Quantity
Sorting Technician	Sorting, Grading, Bundling	**Data entry using Tracified Officer App** • Enter geo coded images (Optional) • Enter warehousing data
Packaging	Cutting and Packing	**Data entry using Tracified Officer App** • Enter geo coded images (Optional)
Exporter	Labeling and Exporting	**Data entry using Tracified Officer App** • Enter geo coded images (Optional) • Details of transport

The frequency of entering the data discussed above is based on each of those roles and whoever manages/overlooks those roles, as such, Each product may or may not have details at the end of the process. Each data item will be tagged to a specific and unique identifier, either generated by Tracified or pre-defined by the controlling authority. In order to enter the data to the traceability system, Tracified Officer App is used. Different roles will be allowed to enter relevant data in different stages of the supply chain, which will be used in generating the final QR code for labelling purposes.

Tracified as a traceability solution can provide the origin story of a product, enabling premium suppliers to meet premium buyers, who seek quality, without leaving any room for the traps of the inferior suppliers who fake their identity or the product. Tracified can collect data from data sources (i.e. ERPs, SCMs) or data capturing software (such as the Tracified Field Officer app) accessible from a client. Until being presented to end-users and company managers, the gathered data will be sliced and diced, using the domain-specific language, Tracified Grammar. Via the Tracified Config portal, it is easy to customize what data to collect, the phases through which an item goes, and what data is presented to the client. This makes Tracified a product that can be 100% configured to accommodate company needs.

It is also possible to customize Tracified to trace and provide upstream visibility of every supply chain. This helps management to access the information entered through Tracified Insights and end users can view the data through the Tracified Mobile application. The Tracified wallet software serves as a blockchain interface.

Traceability information is presented via graphs, charts, maps, and quantitative measurements pertaining to the four dimensions: Origin, Safety, Sustainability, and Community.

- **Origin:** Dimension reflects the origin of the product.
- **Safety:** Dimension reflects certificates, standards, and processes owned by the business to entrust the safety of the food consumed by the consumers.
- **Sustainability:** Dimension informs customers that a business delivers more value to society than just a product. Sustainability badges are awarded to a business based on the good practices followed during the production process.
- **Community:** Dimension reflects how the purchase of a customer nurtures the community as a whole.

The Tracified product suite currently consists of the following Components.

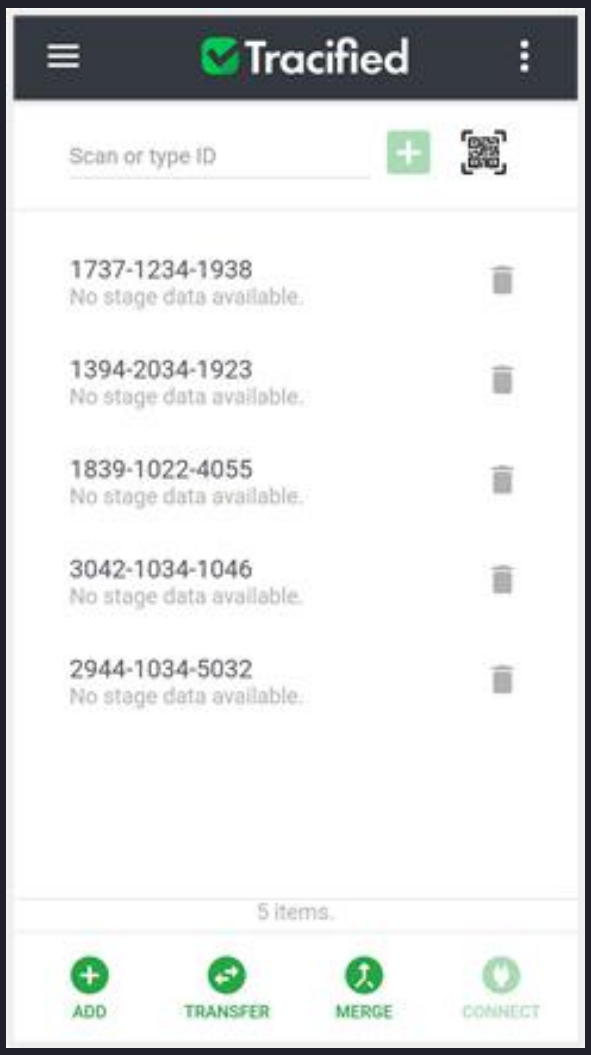
- Tracified Web portal: for administration-level operations (Ex: Insert users, items. Master data)
- Configs portal: to configure the workflow
- Tracified Management portal: for consumers at the Management level (Ex: Insert users, view and download reports)
- Tracified Insights portal: for extended business insights (showcasing the traceability data added for the items by the Field Officers)
- Tracified Field Officer application: for supply chain tracking
- Tracified Mobile application and the Tracified Ecommerce widget: for customers
- Tracified wallet application and Tilit explorer: serves as a blockchain interface

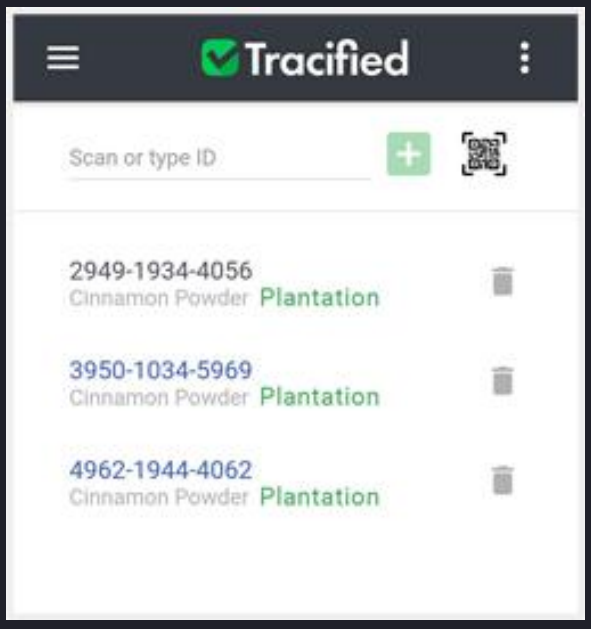
Field Officer Application

Tracifed Field Officer Mobile Application is provided to enter field data to the supply chain. The data is then sent through the Blockchain ensuring security.

Tracified Field Officer app is used to enter the relevant data for all the stages in which a specific goes through. An officer can perform operations such as

- Creating a transaction account
- Managing identifiers
- Adding data for items
- Transferring item stage
- Split/ Merge/ connect items
- Contour mapping - This feature allows top-ranked field officers to add a mapping (A series of geo markers) of a Farm to set boundaries.





Reports and Certifications

Tracified provides a feature to generate the following reports. Management level users (CCGIA, DEA, EDB), exporters can select the date range, exporter name, report type, and download the report

- Reports in terms of quantity of production.
- Reports in terms of quality of production.
- Reports in terms of efficiency of production.
- Reports of ratings and feedback.
- Periodic breach of standards
- Alerts encountered

Tracified certification features allow stakeholders throughout the process to issue, verify, and maintain certifications. CCGIA users define certificate templates but date range, qty, item ids, etc. for these certifications will be defined by IOS and HAC. Not only certificate issuing but also revoke and assigning options are also available in Tracified.

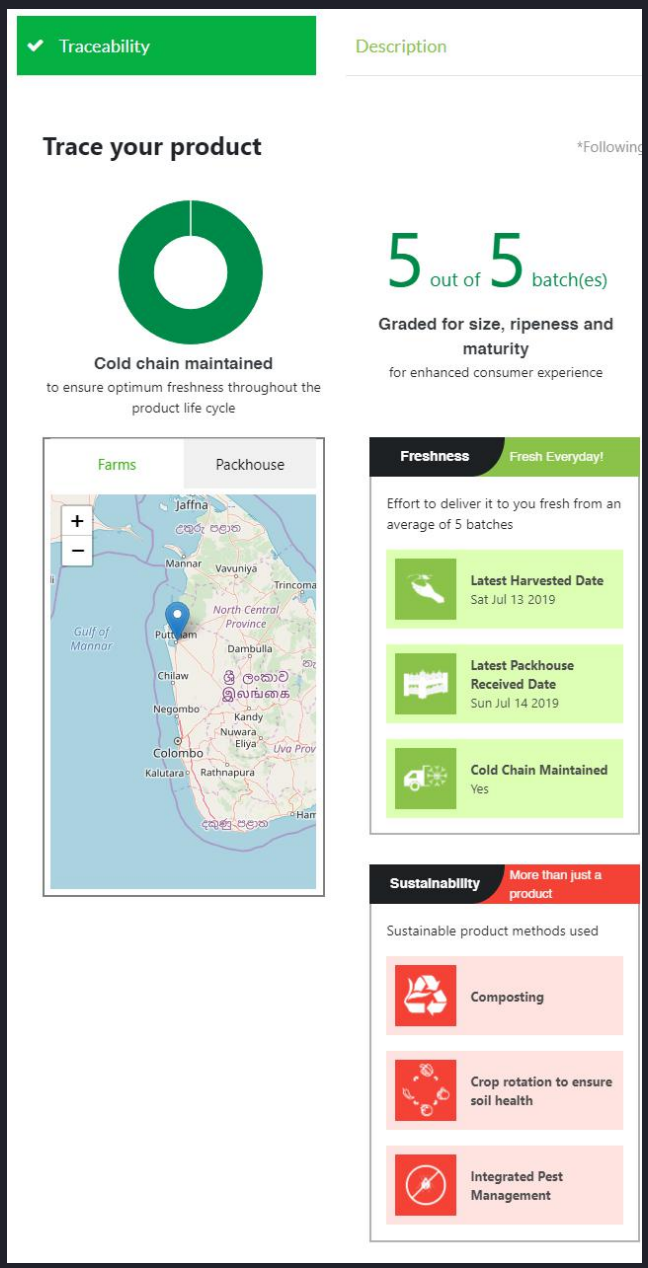
E-Commerce Widget

This view provides a summary of the Traceability data from the 5 (maximum) latest batches of an item that are available in storage, as it is very likely that an online order has a high chance of getting it catered by what is available in the storage.

The map pinpoints the locations of farms where the product is grown and pack houses where it is packed.

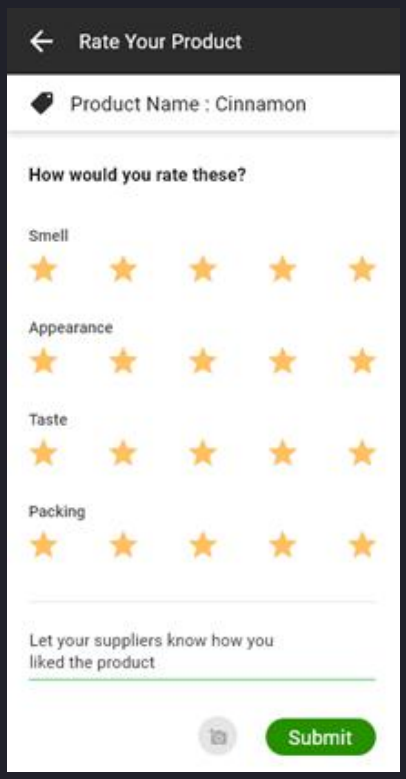
The information provided under the 4 dimensions are fully customizable including the data that are displayed under each card.

The image slider at the bottom of the widget shows images taken of the batches in concern throughout the value chain. These images are automatically geo-coded, timestamped and blockchained by Tracified for guaranteeing their authenticity.



Consumer Application

Tracified Application is designed for end consumers where they can simply scan a QR code and see the entire journey that the product has been through before making their purchase decision.



The end-customer can add a review for the item using this application. If reviewing the product for the first time, the customer can rate the product by selecting the number of stars for each category: smell, appearance, taste and packing, and you can write a review on that product along with five images. If the customer has already added a review for the product, he/she can view the review you posted and you can edit it.

Conclusion

The United Nations Industrial Development Organization project acts as one of the important businesses to experience the bounds of Tracified.

To configure the business flow and oversee the data entered by the field officers, administrators are provided with admin portals. Where users of the management level (CCGIA, DEA, EDB) are able to create normal tenants and can be connected to the management level using the management portal and can also display the reports created. A unique code (QR code) containing the traceability information relevant to the specific item is included with each item delivered. This QR code could be scanned by end-users using any QR code scanning application to access the item's traceability information prior to making the purchase decision. Traceability details of the stocks available are also offered to online customers at the point of placing the order, with the use of a webshop widget integrated. Geocoded images are inserted to display the individual care provided in the handling of an item during processing to further support the details.

In all of this, Tracified assures that the business has the chance for consumers to be transparent, trustworthy, and promising. Thus, it can be concluded that Tracified is a complete solution for traceability of high-end premier products, ensuring a fair distribution of benefits among all entities in the supply chain.