

Comprehensive documentation of the system

This document contains the comprehensive documentation of the functionalities of the most important building blocks of the system, to ensure the sustainable operation and to facilitate future development and maintenance services by different service providers.

General concepts

Location

The app supports two types of locations, based on a country selected on the first step: 1) location in Rwanda (Village, Sector, Cell) and 2) location outside of Rwanda (Street, City, ZIP, State).

Currently, locations are not automatically mapped to Google Map's locations, so additional input of lat/lon has to be specified by double-clicking on the map (existing pin can be removed by right-clicking on the pin).

All locations can be public or private and can have multiple pins related (lat, lon) to Google Maps. If a location is publicly visible on a map, this information is shared within the value-chain.

Location in Rwanda

All locations in Rwanda have to be specified as a triple (Village, Cell, Sector).

Future: a list of all possible inputs for all three attributes, Village, Sector and Cell should be added.

Location

Country*	Rwanda
Village*	Village name
Cell*	Cell name
Sector*	Sector name
Is location publicly visible on a map?*	Select option ...



Double click on the map to drop a pin and mark the locations. Right click on marker to remove it.

Location in Germany (outside of Rwanda)

All locations that are not in Rwanda can be specified with a "generic" location description, suitable for cities (Street, City, ZIP, State).

Country*	Germany
Street address	Hobrechtstr. 67.
City	Berlin
State / Province / Region	Enter State / Province / Region
Zip / Postal Code / P.O. Box	12047
Is location publicly visible on a map?*	YES



Double click on the map to drop a pin and mark the locations. Right click on marker to remove it.

Orders

The app support two types of orders on the edges of the value chain, based on the role of a stakeholder. If stakeholder is a producer (the beginning of the value chain), than it operates with **purchase orders**. If stakeholders is a buyer (the end of the value chain), it uses **customer orders**. Purchase orders are used to describe the beginning of the material flow - buying of red coffee cherries from the farmers, whereas customer orders are used to describe the end step in the value chain, the delivery of the SKU packages to the end-customer.

Purchase orders

Stakeholder, who is a producer, can place purchase orders [here](#) to enter the initial description of the coffee bought from the farmers. When a farmer or collector brings red

coffee beans to a collection station, purchase order is placed. Purchase order stores following data: delivery date, farmer, collector, cooperative employee, who entered the data, quantity in kg, price per unit (RWF/kg), preferred way of payment, women's only coffee and optional additional proofs, such as purchase sheet or payment list.

New purchase order

Basic information	Purchase details
<p>Delivery date* 6. 11. 2020 x</p> <p>Farmer* Select ... QR code</p> <p>Collector Select ... QR code</p> <p>Facility name Nkara</p> <p>Cooperative employee* Urška Krivc x</p>	<p>Semi-product Unwashed coffee cherries x</p> <p>Quantity (kg)* Enter quantity</p> <p>Price per unit (RWF/kg)* 220</p> <p>Payable 1st installment (RWF) Open balance (RWF)</p> <p>Preferred way of payment* Select option ...</p> <p>Women's only* Select option ...</p>

Additional proofs

List of additional proofs [Add document](#)

[Add document](#)

Customer orders

Stakeholder, who is a buyer, can place a customer orders [here](#). When the end-customer orders new supply, customer order is placed by the buyer into the system. Customer order stores following data: order ID, customer, facility, to which order should be shipped, required grade, women's only coffee, latest delivery date and list of ordered items.

New order Order: 11/2020

Order ID*

Order: 11/2020

Customer*

Unknown buyer

Order to*

Kaffeekoop GmbH Berlin

Required grade*

A1

Women's only

Latest date of delivery*

D. M. LLLL

List of order items

[Add order item](#)

Add order item

Cancel

Save

List of ordered items contains required semi-product, quantity and optional price per item at end customer in EUR.

List of order items Add order item 

Semi product*

Select SKU 

Quantity*

Enter quantity

Internal lot name

-

Price per item at end customer (EUR)

Enter price in EUR

Cancel Confirm

A list of orders [here](#) is also displayed as cards and each card shows: order ID, customer name, ordered quantity, desired delivery date, grade, women's only and list of ordered items. Cards are also color coded. Red color indicates that order is open and green color indicated that order is finished.

All orders

Selected facility

Kaffeekoop GmbH Berlin  

List of orders  Filter

Showing 3/3

<p>Order ID:01/2020 </p> <p>Unknown buyer (4550 kg) due 30.11.2020 </p> <p><small>AI, Women's only: Yes, AFMg (1300 kg), AFE (1300 kg), AFM (1950 kg)</small></p>	<p>Order ID:10/2020 </p> <p>Unknown buyer (18000 kg) due 30.11.2020 </p> <p><small>AI, Women's only: Yes, AFE (10000 kg), AFM (8000 kg)</small></p>	<p>Order ID:01-2020 </p> <p>Unknown buyer (0 kg) due 30.11.2020 </p> <p><small>AI, Women's only: Yes,</small></p>
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When clicking on a desired order, user is presented with the order details page.

On the left side panel, there are basic information on order such as order ID, customer, latest delivery, ordered items, quantity women's only and desired grade. There is also a marker, which states if order will be delivered on time (On time) or if order will be delayed (Late).

On the page there is information about ordered items with QR codes and their ordered quantity. There is also additional information about fairness, provenance and quality standards of order. This is automatically calculated from the processes that coffee for the order got through. All documentation and proofs, such as timestamped, location-aware description of processing activities, are collected within order details page. This information is color coded, too, where red means that some information is missing.

Angelique's Finest – Made by Women



Order ID 10/2020

Customer Unknown buyer

Producer Musasa – Dukunde K...

Latest delivery 30.11.2020

Products ordered (SKU) On time

AFE 10000

AFM 8000

Quantity 18000 kg

Womens only

Quality AI

Order details

Products ordered

AFE (10000kg) Manage QR codes

AFM (8000kg) Manage QR codes

Ingredients

Producer Musasa – Dukunde Kawa Cooperative

Producer Angelique's Finest – Made by Women

Quantity 18000 kg

Quality AI

Cupping forms

Sampling note

Sampling note 100%

Documentation

F – Fairness

0 / 0

P – Provenance

0 / 0

Q – Quality

0 / 0

Processing actions

There are three types of descriptions (processing, transfer, quote) used to record facts about processing activities that was done on the top of the material flow in Angelique Finest's value chain. Processing actions are digitalized in such a generic way that can be used in a series of records, describing one step after another, to record the whole processing done to the material flow.

- **Processing** – This activity is performed within one stakeholder, on "my semi-products" in "my facilities".
 - The supported user story is: take some semi-product from my facility, do some action on it, move result (always in form of another semi-product, could be of the same type) to one of my facilities, can be repackaged.
 - Add some information / facts / documents to the system to prove the activity.
- **Transfer** – This activity is performed within one stakeholder, on "my semi-products" in "my facilities". The result is the same semi-product with some new information / location.

- The supported user story is: move some semi-product to other facility or record some information on this semi-product.
- Add some information / facts / documents to the system to prove the activity.
- **Quote** – This activity is performed between two stakeholders, between facilities of two different stakeholders.
 - Since the ownership of the goods changes between two different stakeholders, this action uses request-fulfill (pull-push) loop.
 - The supported user story is: Request - Please give me so much of this semi-product and these documents and information, from your facility to mine; Fulfillment - here you have them, semi-product and documents.

Each stakeholder can configure processing actions to closely describe existing activities in his part of the value chain.

Payments

Payments can be placed for purchase orders or add to customer orders.

Purchase payments

Payments for purchase orders can be add directly on purchase order [here](#) or on a payments page [here](#). Purchase orders are paid from company that is producer in stakeholders list.

Payments

+ Add payment

List of payments
Showing 10/484

Filter
Search
Confirm payments

From To

<input type="checkbox"/>	Payment purpose	Amount paid to the farmer (RWF)	Farmer name	Delivery date	Payment date	Status	Way of payment	Actions
<input type="checkbox"/>	Cherry payment	9000	Fredianne Nyirantibisana	19.5.2020	28.7.2020	UNCONFIRMED	Bank transfer	View Confirm
<input type="checkbox"/>	Cherry payment	10750	Frolide Twagiramaliya	19.5.2020	3.7.2020	UNCONFIRMED	Bank transfer	View Confirm
<input type="checkbox"/>	Cherry payment	46750	Odette Murekatete	19.5.2020	12.6.2020	UNCONFIRMED	Bank transfer	View Confirm

New payment gathers data from purchase order and prefills certain fields, i.e. paying company, payment receiver (farmer and/or collector), purchase order reference, preferred way of payment, purchased coffee beans in kg. Other required fields that should be filled are payment purpose (cherry payment, advanced payment, ...), payment type (bank or cash),

amount paid to the farmer in RWF, receipt number and additional proof (purchase sheet or receipt).

New payment

Basic information

Payment date*
6. 11. 2020

Payable from
Musasa – Dukunde Kawa Cooperative

Payable to
 Company
or
 Collector
or
 Farmer

Order reference
PT-UWAMAHORO-2020-05-19

Preferred way of payment
Bank transfer

Payment purpose*
Cherry payment

Bulk payments

Purchase orders can also be paid in bulk. On purchase order list desired purchases can be selected [here](#)

List of purchase orders
Showing 10/664

Filter Search Add payments

From D. M. LLLL To D. M. LLLL

Delivery date	Farmer	Quantity (kg)	Payable / Balance	Way of payment	Actions
<input checked="" type="checkbox"/> 19.5.2020	STEPHANO UWAMAHORO (FAR0290, TU-NY)	54	13500 / 13500	Bank transfer	Edit View Add payment Farmer profile Delete
<input checked="" type="checkbox"/> 19.5.2020	Frolide Twagiramaliya (FAR0240, BA-NY)	43	10750 / 0	Bank transfer	Edit View Add payment Farmer profile Delete

Bulk payment form is also prefilled from selected purchase orders (paying company, payment receivers (farmers and/or collectors), total amount to be paid in RWF). Other required fields include payment purpose, payment description, receipt number and optional list of additional proofs, such as payment list, payment proof, ...

New bulk payment

Basic information

Payment date*

6. 11. 2020 x

Payable from

Musasa – Dukunde Kawa Cooperative

Company

or

Collector

or

Farmer

Multiple

Multiple

Payment purpose*

Select option ...

Purchase orders to be paid

Name

PT-UWAMAHORO-2020-05-19

Cost (RWF)

13500

Balance (RWF)

13500

Paying (RWF)

13500

Name

PT-Twagiramaliya-2020-05-19

Cost (RWF)

10750

Balance (RWF)

0

Paying (RWF)

0

Order payments

Order payments are placed directly on customer order. Customer orders are paid from company that is buyer or owner in stakeholders list.

My orders

+ Add customer order

Selected facility

Select facility

Please select one facility to see list of all orders.

Date of delivery	SKU	Customer	Order ID	Ordered to	Quantity / Fulfilled	Unit	kgs	Time of last change	Actions
2020-11-30	AFMg	Unknown buyer	01/2020	Rwashoscco – Rwanda Small Holder Speciality coffee Company (Storage at Roastery)	1300 / 0	kg (in 500g pack)	1300	2020-11-05 05:03	Edit Add payment Delete QR
2020-11-30	AFM	Unknown buyer	01/2020	Rwashoscco – Rwanda Small Holder Speciality coffee Company (Storage at Roastery)	1950 / 0	kg (in 500g pack)	1950	2020-11-05 05:03	Edit Add payment Delete QR

Similar to purchase order, certain data are prefilled using customer order, such as paying company and order reference. Other required fields include payment receiver, i.e. company from stakeholders list, payment purpose, such as AF women premium or invoice payment, amount to be paid in EUR, receipt number and signed receipt proof.

New payment

Basic information

Payment date*

6. 11. 2020

Payable from

Kaffeekoop GmbH

Payable to

Company

Select client

or

Collector

or

Farmer

Order reference

01/2020 (AFMg, 1300 Package 500g)

Payment purpose*

Select option ...

Payment type*

Bank

History

Each stock order (including orders and purchase orders) has its own history, which can be accessed [here](#).

All stock orders

Facility

Kaffeekoop GmbH Berlin

List of orders

Showing 6/6

Available only x

Filter

Select SemiProduct

Production date	Type	Type	Semi-product	Quantity / Filled / Available	Unit	Delivery date	Date of last change	Status	Actions
<input type="checkbox"/> 28.10.2020	ORDER_URSKA (AFE, 300 kg (in 500g packs))	QUO	AFE	300 / 180 / 180	kg (in 500g pack)	29.11.2020	2020-10-30 08:03	Available	Edit View Delete
<input type="checkbox"/> 29.10.2020	LOT_0001	QUO	AFE	300 / 10 / 10	kg (in 500g pack)	29.11.2020	2020-10-30 07:57	Available	Edit View Delete

History page firstly shows some basic data about stock order, such as name, facility, semi-product, order type, processing action and other.

Order details

[Edit](#)

Basic information

Internal lot name	ORDER_URSKA (AFE, 300 kg (in 500g packs))
Facility	Kaffeekoop GmbH Berlin (Kaffeekoop GmbH)
Product	Angellique's Finest – Made by Women
Semi-product	AFE

Total	300 kg (in 500g pack)
Fulfilled	180 kg (in 500g pack)
Available quantity	180 kg (in 500g pack)

Created	2020-10-28 01:16
Formal creation date	
Last change	2020-10-30 08:03
Production date	2020-10-28
Comment	-

Processing information

Order type	QUO
Processing action	Order AFE for customer (Quote)

Inputs	AFE • 180 kg (in 500g pack)
Outputs	AFE

Following basic data, there is a detailed history list that shows all previous processing steps. Detailed history list is also color coded. Missing required documents and fields are marked with red color. Present required documents and fields are marked with blue color. Detailed history list allows to click and edit desired stock order in history in order to add missing data or edit other entries.

Legend: ● required in process – present, ● required in process – missing, ● additional document in process, ● required on quote – present, ● required on quote – missing, ● one of required documents on quote in group G1 present, ● all of required documents on quote in group G1 missing

History

- 2020-10-30 08:03 – Roasting order
 - 2020-10-30 08:03 @ Storage at Roastery : URSKA_LOTS_roast/0001 – 180 kg (in 500g pack)
- 2020-10-30 08:02 – 2_Repackage Green coffee into Grainpro bags
 - 2020-10-30 08:02 @ Storage at Roastery : URSKA_LOT_1/002 – 60 kg (in 60 kg bag)
 - 2020-10-30 08:02 @ Storage at Roastery : URSKA_LOT_1/001 – 60 kg (in 60 kg bag)
 - 2020-10-30 08:02 @ Storage at Roastery : URSKA_LOT_1/003 – 60 kg (in 60 kg bag)
- 2020-10-30 07:59 – 1_Order green coffee from Producer
 - 2020-10-30 07:59 @ NAEB storage : URSKA_LOT – 300 kg (in 60 kg bag)
 - Lot label: URSKA_LOT
 - Required quality: A1
 - Price (RWF) / kg for Owner: 2000
 - Cupping grade: 86
 - Required women's only coffee: -
- 2020-10-29 11:48 – D2_Move white bags to NAEB
 - 2020-10-22 10:38 @ Green Coffee storage @ NAEB : 28/005/20_001/6/11 – 60 kg (in 60 kg bag)

System settings

Companies

Can be accessed [here](#).

All registered companies in the system can be modified. Properties that can be modified are name, logo, headquarters, company description, certification, contact data, social media links and users.

Companies

List of companies Showing 4/33 My companies x Filter Search New company

Name ▲	Status ▲	Actions
Kaffeekoop GmbH	ACTIVE	Edit Activate Deactivate Merge to
Koakaka – Karaba Coffee Farmers Cooperative	ACTIVE	Edit Activate Deactivate Merge to
Musasa – Dukunde Kawa Cooperative	ACTIVE	Edit Activate Deactivate Merge to
Rwashoscco – Rwanda Small Holder Speciality coffee Company	ACTIVE	Edit Activate Deactivate Merge to

Certain properties of the company are displayed on B2C page, i.e. name, production records (with multimedia), farmers' description and certifications.

Edit company

Basic information

Add information about your company including your company name, logo, address, contact information, website and social media URLs.

Company name

Company abbreviation

Company logo*
 Browse  

Upload a high-resolution logo of your company (jpeg, jpg, png)

Some description for B2C can be translated in to german language.

Company translations

English version

Company name (EN)

Koakaka - Karaba Coffee Farmers Cooperativ

Company abbreviation (EN)

KOA

About company (EN)

Year of foundation: 2002
Number of members: 1,316
Number of coffee trees: 745,000

We are located in the South Province of
KwaZulu-Natal, at the edge of Ntunyanu zisifanot.

Briefly describe your company and its history. Include the company mission and vision as well as core values. (max 2000 characters)

German version

Company name (DE)

Koakaka - Karaba Coffee Farmers Cooperativ

Company abbreviation (DE)

KOA

About company (DE)

Briefly describe your company and its history. Include the company mission and vision as well as core values. (max 2000 characters)

Users

Can be accessed [here](#).

All registered users in the system can be modified, i.e. general information such as name, surname, setting of app language preference or system settings, such as role and status.

Users

List of users

Showing 10/57

My users ×

Filter

Search

Name ▲	Surname ▲	E-mail ▲	Role ▲	Status ▲	Actions
Miha	Burgar	miha@abel...	ADMIN	ACTIVE	Edit Activate Deactivate Unset admin
Michel	DUSENGIMANA	finestblock...	USER	DEACTIVATED	Edit Activate Deactivate Set admin
Jon	Goriup	jon@phy2a...	ADMIN	ACTIVE	Edit Activate Deactivate Unset admin
J Bosco	Habimana	finestblock...	USER	DEACTIVATED	Edit Activate Deactivate Set admin
Damien	HAKIZIMANA	hakizadam...	USER	DEACTIVATED	Edit Activate Deactivate Set admin
Boris	Horvat	boris@abeli...	ADMIN	ACTIVE	Edit Activate Deactivate Unset admin
Urška	Krivic	urska.krivc...	ADMIN	ACTIVE	Edit Activate Deactivate Unset admin
OLIVIER	MUHIRWA	muhirwaoli...	USER	DEACTIVATED	Edit Activate Deactivate Set admin
Emerthe	MUKAMURIGO	mukamem...	USER	DEACTIVATED	Edit Activate Deactivate Set admin
faina	mukashingiro	fainamukas...	USER	ACTIVE	Edit Activate Deactivate Set admin

« 1 2 3 »

Facility types

Can be changed [here](#).

All different facility types that can be used to describe different kind of facilities. Used to differentiate facilities.

Examples

Facility types			+ Add
List of facility types Showing 4/4			
Id	Label ▲	Actions	
DRYING_BED	Drying bed	Edit Delete	
HULLING_STATION	Hulling station	Edit Delete	
STORAGE	Storage	Edit Delete	
WASHING_STATION	Washing station	Edit Delete	

- E.g. Storage, Hulling station, Drying bed, Washing station.

Measurement unit types

Can be changed [here](#).

Describes one unit of measurement of semi-products. Used to calculate weight of resource needed to perform a processing action, including to calculate the weights of packages (sometimes called bags or sacks) when repackaging and waste (remaining material).

- ID - unique ID for this unit of measurement.
- Label - a short label describing this unit of measurement.
- Weight (in kg) - how much resource does the unit contain (in kg).
- Underlying measurement unit - if set to e.g. X, the measurement unit is essentially the same as X (and the comparison in repackaging works); when not selected, this is completely different measurement unit than others (non-comparable, non-fungible, non-divisible).

Examples

Measurement unit types			+ Add
List of measurement unit types Showing 5/5			
Id	Label ▲	Actions	
ITEM_OF_SIZE_500G	items (in 500g pack)	Edit Delete	
WEIGHT_KG	kg	Edit Delete	
PACK_500G	kg (in 500g pack)	Edit Delete	
BAG_60	kg (in 60 kg bag)	Edit Delete	
FIBC_BAG	kg (in FIBC bag)	Edit Delete	

- One kilogram of AFE coffee in packages that weight 500g - the underlying measurement unit is "kg" and weights 1kg; this enables ordering of AFE by kgs.

The screenshot shows a form titled "Edit measurement unit type" with a close button (x) in the top right corner. The form contains the following fields:

- Id:** A text input field containing "PACK_500G".
- Label:** A text input field containing "kg (in 500g packs)".
- Weight (in kg):** A text input field containing "1".
- Underlying measure unit:** A dropdown menu with the text "Select measure unit type" and a downward arrow.

At the bottom of the form, there are two buttons: "Cancel" and "Save".

- One package of AFE coffee that weights 500g - this can be an item, that weights 0,5kg, and hence no underlying measurement unit is needed; this enables ordering of AFE by items. By using special unit (instead of just "kg") just denote, that the packaging is different.

The screenshot shows a form titled "Edit measurement unit type" with a close button (x) in the top right corner. The form contains the following fields:

- Id:** A text input field containing "ITEM_OF_SIZE_500G".
- Label:** A text input field containing "items (in 500g pack)".
- Weight (in kg):** A text input field containing "0,5".
- Underlying measure unit:** A dropdown menu with the text "Select measure unit type" and a downward arrow.

At the bottom of the form, there are two buttons: "Cancel" and "Save".

- Grainpro bag - underlying measurement unit is the same as "kg", just packaged in ~60 kg bags, so weight is 60, in real life packaging can vary (e.g. from 58 - 62) and underlying measurement unit is "kg".

Edit measurement unit type [x]

Id
BAG_60

Label
kg (in 60 kg bag)

Weight (in kg)
60

Underlying measure unit
kg [x]

Cancel Save

Grade abbreviations

Can be changed [here](#).

All different grading types for a semi-product that are used to insure the quality of the ordered/delivered semi-products through the value chain.

Examples

- E.g. A1, A2, A3, etc.

Processing evidence types

Can be changed [here](#).

A list of all supported evidence types that can be recorded in the system on a resource (material flow) through the value chain. Some of the evidence are in form of digitalized documents (e.g. PDF or photo), some are in form of free text (e.g. export lot number) or selected item from a menu, and others are the result of a calculation from the system (e.g. estimated date of delivery or client's name). Evidence gathered on a quote order is collected in three groups (Fairness, Provenance, Quality), each of the evidence types can belong to several groups.

- ID - unique ID for this unit of processing evidence.
- Label - a short label describing this evidence.
- Action type - which type of the evidence will be added to the system

- Document - document is uploaded, e.g. PDF / PNG / JPG;
 - Field - text is added (for some fields, can be selected by using a menu) by the user;
 - Calculated - a result of a calculation that is hardcoded in the system for this ID;
- Indicators - the category where this evidence fits in the "quote details" report: Fairness, Provenance, Quality.

Examples

Processing evidence types + Add

List of processing evidence types
Showing 10/59

Id	Label ▲	Type	Fairness	Provenance	Quality	Actions
ARRIVED_AT_DATE_TO_DESTINATION_PORT	Arrived at date to destination port	Field		✓		Edit Delete
BILL_OF_LADING	Bill of lading	Document		✓		Edit Delete
CARRIER_DETAILS	Carrier details	Field		✓		Edit Delete
CEPAR_SLIP	CEPAR paying slip	Document	✓			Edit Delete
CERTIFICATES_IDS	Certificates	Calculated	✓		✓	Edit Delete
CLIENT_NAME	Client name	Field		✓		Edit Delete
CUPPING_FLAVOUR	Cupping flavour	Field			✓	Edit Delete
CUPPING_FORM_REPORT	Cupping form report	Document			✓	Edit Delete
CUPPING_GRADE	Cupping grade	Field			✓	Edit Delete
CUPPING_RESULT	Cupping result	Field			✓	Edit Delete

«
1
2
3
4
5
6
»

- A bill of lading is a document that confirms the origin of the resource shipped.

Edit processing evidence type ✕

Id
BILL_OF_LADING

Label
Bill of lading

Action type*
Document ✕ ▾

Indicators

Fairness

Provenance

Quality

Cancel Save

- Client information contains the name of the client.

Edit processing evidence type

Id
CLIENT_INFORMATION

Label
Client information

Action type*
Calculated

Indicators

- Fairness
- Provenance
- Quality

Cancel Save

Product configuration

Building blocks of the application can be personalized to map existing stakeholders (companies collaborating on the value chain). The digital workflow of each stakeholder should mimic the real-life activities performed or managed by the stakeholder.

Facilities

Can be changed [here](#)

The material flow of the resource, semi-products and SKUs, transacting through the value-chain managed by the stakeholder goes through facilities (e.g. storages) used by the stakeholder.

Each of the stakeholder can have its own facilities in the app. They represent the location of the material in the workflow, and have to be specified in each of the transactions on the value-chain (we take some semi-product from the input facility, perform some action on it and move it to the output facility). Facilities are shown as a list and on a Google Maps.

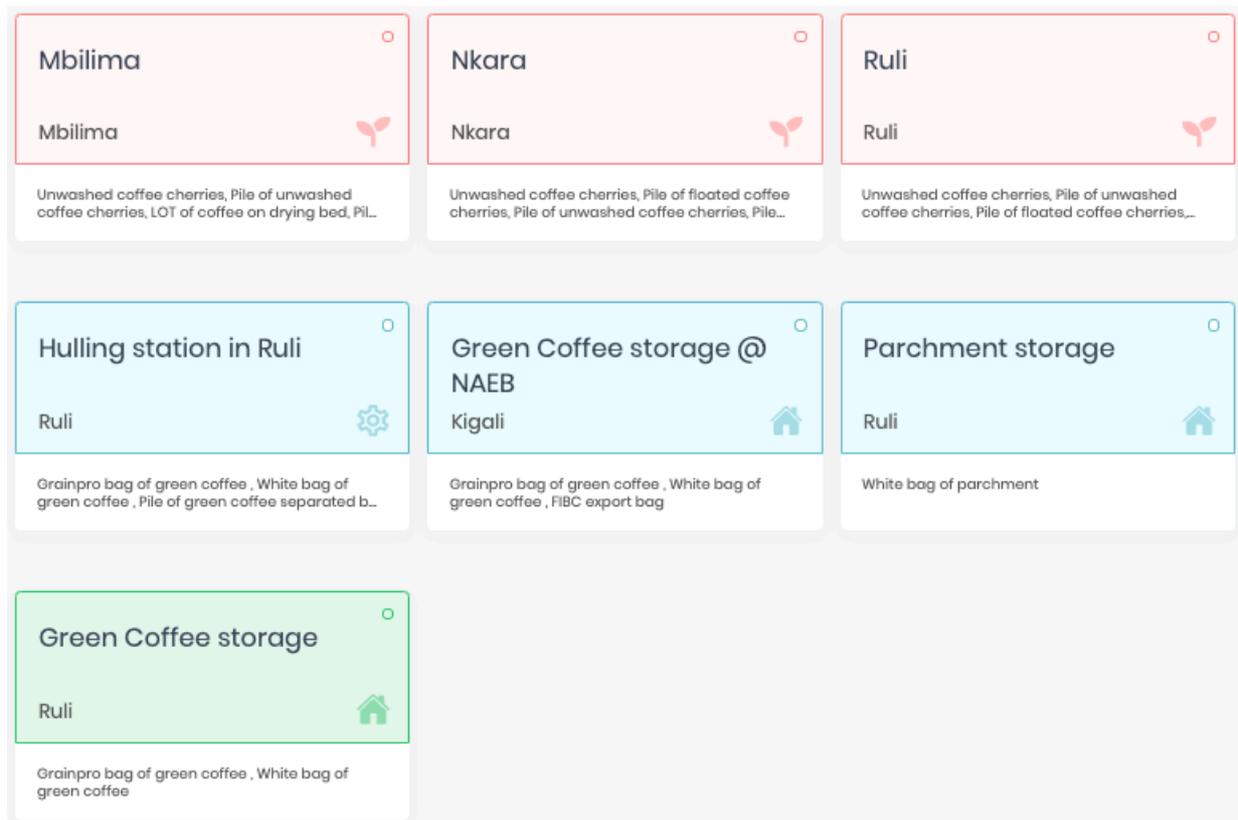
List of facilities

Showing 7/7

Name ▲	Facility type	Sellable semi-products	Location	Actions
Green Coffee storage	Storage	✓	Ruli, Rwanda	Edit
Green Coffee storage @ NAEB	Storage		Kigali, Rwanda	Edit
Hulling station in Ruli	Hulling station		Ruli, Rwanda	Edit
Mbilima	Washing station		Mbilima, Rwanda	Edit
Nkara	Washing station		Nkara, Rwanda	Edit
Parchment storage	Storage		Ruli, Rwanda	Edit
Ruli	Washing station		Ruli, Rwanda	Edit



When inserting processing actions, user usually starts by clicking a facility that stores the semi-product being processed, see e.g. [here](#). Collection facilities are shown in red color, Sellable facilities in green color, all other facilities in light blue color. Facilities are shown as "cards" and show the name of the facility, its location and the list of all semi-product that can be stored in the facility.



Facilities are configured per stakeholder per product, each stakeholder can configure only its facilities.

Each facility is described with the following attributes.

Basic information: Facilities are described by having: name, facility type and location.

Additional attributes:

- Is this a collection facility? - Should be set to YES, when this facility is used as a collection facility (i.e. when buying raw material from farmers, that are outside of the value chain mapped in the application) and NO otherwise. Purchases are only possible on collection facilities.
- Contains sellable semi-products? - Should be set to YES, if this facility is used to store semi-products that can be ordered by other partners in the value chain and NO otherwise. Quote orders can take semi-products only from the facilities that contain sellable semi-products.

Contained semi-products: A list of all semi-products that can be stored in this facility.

Suggested semi-product prices: For each semi-product, a suggested price can be defined - this information is currently used when purchasing this semi-products from farmers, to prefill the purchase price from the farmer.

Semi-products

Can be changed [here](#)

Flow of the material in the value chain starts at the purchase (e.g. unwashed red cherries). By applying one or several processing actions on the material, semi-products are created from the initial purchase.

Semi-products

List of semi-products
Showing 10/20

[+ Add semi-product](#)

Filter

Name ▲	Buyable	SKU (at producer)	SKU (at end customer)	Actions
AFE			✓	Edit Delete
AFeg			✓	Edit Delete
AFM			✓	Edit Delete
AFMg			✓	Edit Delete
FIBC export bag		✓		Edit Delete
Grainpro bag of green coffee		✓		Edit Delete
LOT of coffee on drying bed				Edit Delete
Pile of fermented coffee				Edit Delete
Pile of floated coffee cherries				Edit Delete
Pile of fully washed coffee				Edit Delete

Semi-products are configured once per value-chain, to encourage all the stakeholders to use the same names.

Basic information

Name*

AFE

Description*

Final coffee - AFE.

Enter short semi-product description.

Select measure unit type*

kg (in 500g pack)

- Is buyable at producer
- Is stock keeping unit at producer
- Is stock keeping unit at end customer

Each semi-product can be described in the app by:

- Name - short name of the semi-product.
- Description - human readable description of the observed semi-product.
- Measurement unit type - define the measurement used in the app for this semi-product; the product can be measured as item (of some weight), as a pile (in kg) or as a package (of other measurement unit types, e.g bag of 60kg). Each action (processing, purchase, quote) can automatically repackage the semi-product involved, based on this setting.
- Is buyable at producer - If set to YES, this product can be bought from the farmers by the producer.
- Is stock keeping unit at producer - If set to YES, this product can be bought from the producer by the exporter.
- Is stock keeping unit at end customer - If set to YES, this product is sold on the market - sometimes also called **SKU**.

Processing actions

Can be changed [here](#)

To record the material flow or document flow changes in the value chain, we model the real-life activities that are recorded in the app with three different types of processing actions: processing, transfer, quote.

Processing actions are digitalized in such a generic way that can be used in a series of records, describing one step after another, to record the whole processing done to the material flow.

- **Processing** – This activity is performed within one stakeholder, on "my semi-products" in "my facilities".
 - The supported user story is: take some semi-product from my facility, do some action on it, move result (always in form of another semi-product, could be of the same type) to one of my facilities, can be repackaged.
 - Add some information / facts / documents to the system to prove the activity.
- **Transfer** – This activity is performed within one stakeholder, on "my semi-products" in "my facilities". The result is the same semi-product with some new information / location.
 - The supported user story is: move some semi-product to other facility or record some information on this semi-product, by not changing the original semi-product.
 - Add some information / facts / documents to the system to prove the activity.
- **Quote** – This activity is performed between two stakeholders, between facilities of two different stakeholders.
 - Since the ownership of the goods changes between two different stakeholders, this action uses request-fulfill (pull-push) loop.
 - Input facility is down-stream the value-chain. The stakeholder upstream requests the delivery of semi-product from the stakeholder downstream the value chain.
 - The supported user story is: Request downstream - Please give me so much of this semi-product and these documents and information, from your facility to mine; Fulfillment upstream - here you have the requested quantity of semi-product with the documents.

Each stakeholder can configure processing actions to closely describe existing activities in his part of the value chain.

Processing actions

+ Add processing action

List of processing actions
Showing 9/9

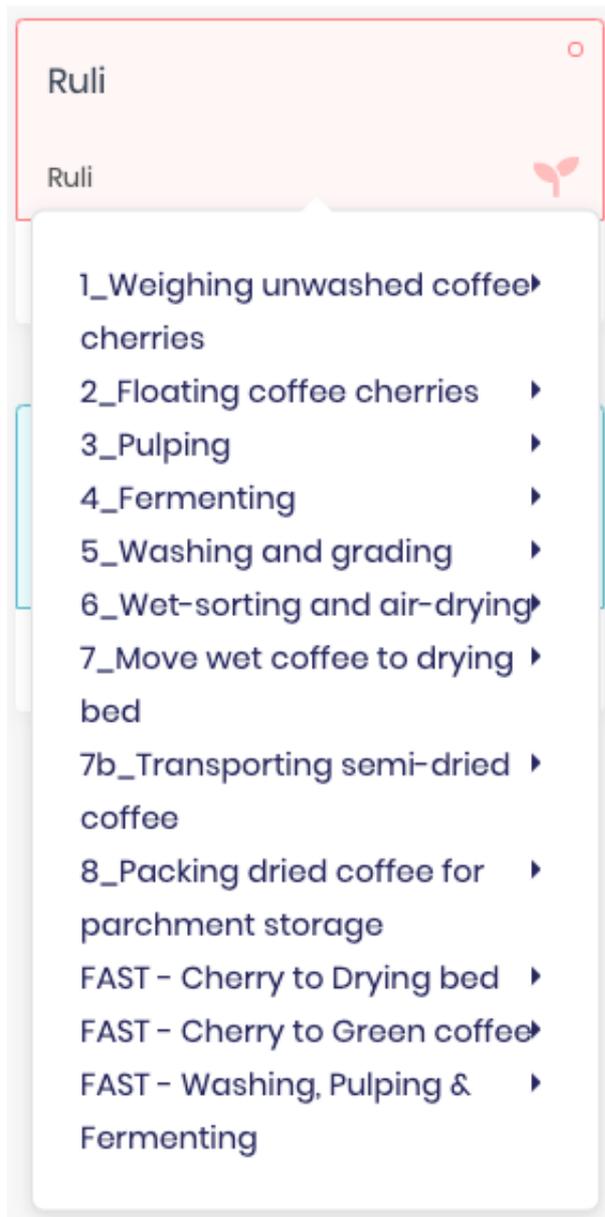
Name of process ▲	Type	Input semi-product	Output semi-product	Actions
Order AFE for customer	Quote	AFE	AFE	Edit
Order AFEG for customer	Quote	AFEG	AFEG	Edit
Order AFM for customer	Quote	AFM	AFM	Edit
Order AFMg for customer	Quote	AFMg	AFMg	Edit
Order coffee from Exporter	Quote	Grainpro bag of green coffee	Grainpro bag of green coffee	Edit
Order last mile delivery	Transfer	AFE	AFE	Edit
Record a delivery note to Buyer	Transfer	AFM	AFM	Edit
Record a location of end delivery	Transfer	Grainpro bag of green coffee	Grainpro bag of green coffee	Edit
Record Invoice for Customer	Transfer	Grainpro bag of green coffee	Grainpro bag of green coffee	Edit

All processing actions have a short name and human readable description. All processing actions are performed on a semi-product from the input facility. Processing actions require that user recording them in the app inserts "internal lot name" into the system; this name is used to name output semi-product (in case there are more, as a result of repackaging, "/SAC_NUMBER" is prepended to each output name). If "Internal lot name prefix" is defined, this string is prefilled in the "Internal lot name" on every instance of this processing action. There is additional human readable label publicly stored on the blockchain "Public timeline label".

Processing actions are configured per stakeholder per product, each stakeholder can configure only its actions. Processing actions can be called by clicking a button

+ Add processing order

or by clicking on the facility that contains the semi-product with the same type as the input type of the semi-product of this processing action.



Processing action can request from the user input of the following information about the processing:

Client's name - the name of the Buyer, this semi-product is prepared for - Customer - the name of the End Customer, this semi-product is prepared for - Price (RWF) / kg for Producer - price per kg (in RWF) for a product for the Produced at the Farmer - Grade, Screen size - results of the sampling - Export lot number - the export label used in the export procedures for this semi-product - Lot label - lot label given to the pile of coffee by the producer, that follows the material flow until the sale to the Exporter - Start of drying - date, when the drying started - Flavour profile - results of the cupping, needed by the importer to buy this coffee - Certificates - IDs of certificates attached to this product - Women's share - share of woman product in this semi-product

Processing action can additionally request from the user input of the following information about the fulfilment of the order:

- Required women's only coffee - boolean, yes/no
- Required quality - selection from the list of all grading types
- Trigger orders - this quote order is connected to other quote orders from the upstream (e.g. order from exporter to producer is connected to one order from importer to exporter, so that the importer can observe the status of its order)
- Cupping results, Cupping grade, Cupping flavour - results of the cupping, needed by the roaster to properly roast this coffee
- Roasting date - the date of the roasting
- Roasting profile - results of the cupping, needed by the roaster to properly roast this coffee
- Shipper details , Carrier details , Port of loading, Port of discharge, Shipped at date from origin port, Arrived at date to destination port - the details about the shipping to Europe
- Location of end delivery - the location to which the end product should be delivered
- Estimated date of the delivery - the date when this quote
- Price (EUR) / kg for End customer - price per kg (in EUR) for a product for the end customer at the Buyer
- Exchange rate at End customer (1 EUR = X RWF) - exchange rate at the time of input (since coffee is bought in RWFs)
- Price (EUR) / kg for Buyer - price per kg (in EUR) for a product for the Buyer at the Owner
- Exchange rate at Buyer (1 EUR = X RWF) - exchange rate at the time of input (since coffee is bought in RWFs)
- Price (RWF) / kg for Owner - price per kg (in RWF) for a product for the Owner at the Producer

Each of this (processing and fulfillment) fields can have three settings, set by ticking three check boxes:

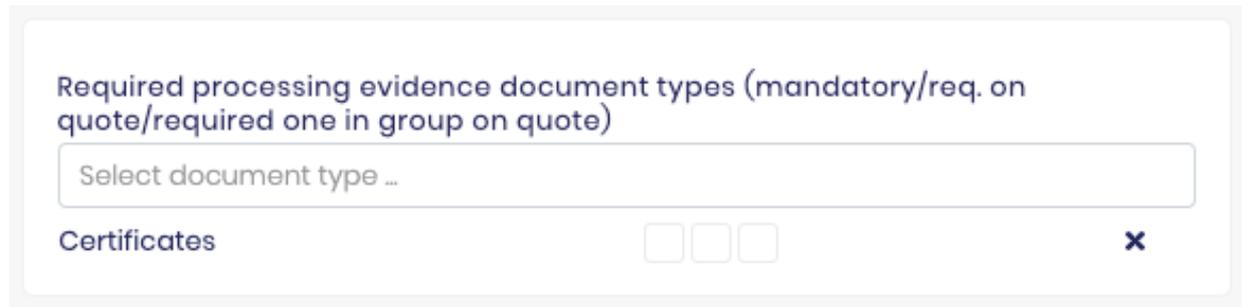
- required - on this step, in real life, the stakeholder should have the information to fill in this field, when recording this action, but the field can be left empty
- mandatory - this field is mandatory and processing action cannot be saved without providing this information
- required on quote - can only be selected on actions of type quote; if set to YES, this information is required downstream value-chain to be provided along with the semi-product in fulfillment part of the quote action; these can be specified only for quote actions

Select required/mandatory/required on quote fields:

Required women's only coffee

Additionally, processing actions can require additional proofs in the form of documents of

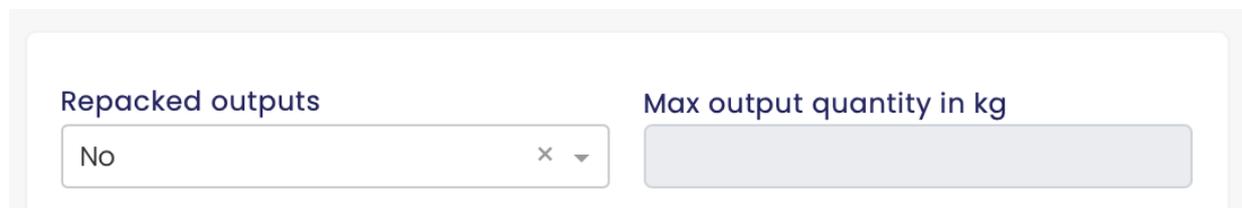
specific type to be attached as the processing evidence to this action, see e.g. [Processing evidence types](#). These to can be set to be left empty or mandatory.



Actions of type Processing

This actions are between two different semi-products, input and output (e.g. unwashed coffee -> washed coffee). When the resulting semi-product is different than the origin semi-product, this action type must be used.

We can repackage the ouput in more than one package (of some measurement unit types, e.g. bags of 60kg) and check if the quantity of this package is less than max amount in the specific measuring unit type. Sometimes input and output semi-products can have the same type (e.g. washed coffee beans), (e.g. while packaging coffee from a pile into bags of parchment or when repackaging a coffee in white bags into grainpro bags etc.).



Additional parameters of the action of type processing are:

- Repacked outputs - boolean, if set to YES, the output can be multiple instances of type output semi-product with quantity and link to its history
- Max output quantity in MUT - where MUT is measuring unit type of the end semi-product (e.g. kg in 60kg bag)

Actions of type Transfer

Processing actions of type Transfer are used to move a semi-product from one facility to the other, where both facilities must be of the same stakeholder. Additionally, they are used to annotate one or several instances of a semi-product with evidence, e.g. information or document.

Actions of type Quote

Processing actions of type Quote request (downstream the value-chain) a delivery of a quantity of a semi-product and some documents to the stakeholder, e.g. "exporter orders the delivery of 500 kg of green coffee from the producer, together with phytosanitary and export documentation, before the end of 2020".

This action requests, beside the quantities of selected semi-products, the delivery of the information or documents (the third checkbox).

B2C configuration

QR Labels

Can be changed [here](#)

Each product can have many (QR) labels, each having its own properties and URL, where data shown to the end-customers can be accessed in a form of a modern, mobile friendly web page (e.g. [here](#) or QR code bellow under Order-specific section). Labels are marketing tools to structure a presentation of the product on the web, publicly accessed by end customers that scan the QR code on the package of the end product in the store.

QR labels are composed from two parts.

Generic content



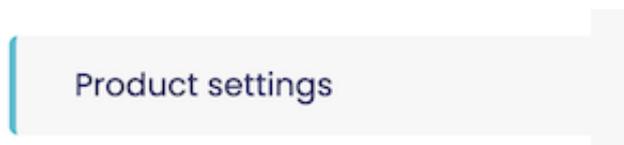
First part is generic for all orders and consists from the following properties, such as language and legal texts (GDPR, Privacy policy, Terms of Use) can be configured [here](#). Basic properties of the label that can be personalized, are: name, photo, description and origin, including lat/lon locations on Google Maps. Some of the properties are optional, such as: ingredients, nutritional value, how to use/recipes, key markets, speciality. Labels can

detail the information about specific processes, such as: production, codes of conduct, storage, specific certification and standards on the product and production records (steps about this product). Similarly, social dimension, such as labor policies, relationship with the farmers and suppliers and farmer's story can be documented per label. Additionally, environmental details, such as environmentally friendly production, sustainable packaging and CO2 footprint can be described. Lastly, information that will be publicly disclosed about the owner can also be selected.

The transparency of fairness and pricing is really important for this project, hence multiple properties of pricing transparency and comparison of prices can be added, including description, graphic material of increase in income on this value chain. Information that is used to draw graphics and animation of different charts in fairness and quality via the mobile app on QR code, can be added, too.

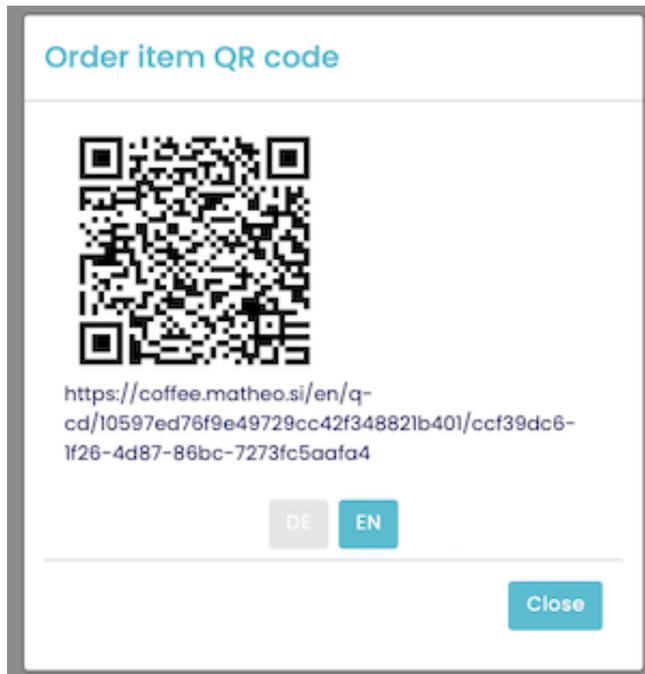
When a label is published, generic data about this product is shown on the internet and when unpublished, data is hidden.

Each product has at least one label, that is used to store data for the back-end, and can be changed [here](#).



Order-specific content

Second part is specific to certain order and holds information about producer, farmers, quality of coffee, flavour of coffee and all actions, including their locations and dates, needed to be done during the process.



The fulfilled QR code is generated and accessible under My orders [here](#) or Order details section.

My orders + Add customer order

Selected facility Please select one facility to see list of all orders.

Select facility ▼

Date of delivery ▲	SKU	Customer	Order ID	Ordered to	Quantity / Fulfilled	Unit	kgs	Time of last change ▲	Actions
2020-10-31	AFE	DM	Demo order	Rwashoscco - Rwanda Small Holder Speciality coffee Company (Storage at Roastery)	100 / 0	kg (in 500g pack)	100	2020-10-30 10:05	Edit Add payment Delete QR

Order details

Products ordered

AFE
(300kg)

Manage QR codes 

Ingredients

Producer Musasa – Dukunde Kawa Cooperative

Producer Angelique's Finest – Made by Women

Quantity 300 kg

Quality A1

Cupping forms

Sampling note

Statistics

Can be accessed [here](#)

All access to the mobile app via QR codes is logged and statistics about the location of the access is shown [here](#).

Statistics

Page visit



Number of visits
through QR code

111

Scan locations



Page visits

Feedback

Can be accessed [here](#)

End customer can use the QR code and submit a feedback back to the system.



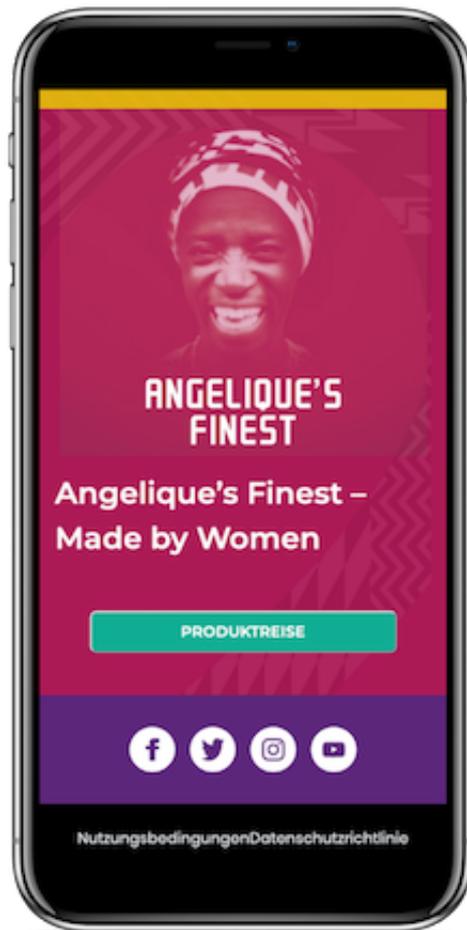
All feedback is gathered and can be accessed [here](#).

Feedbacks					
List of feedbacks					
Showing 10/19					
Email ▲	Gender ▲	Age ▲	Feedback	GDPR	Actions
test@test.test			Thumbs up		View
testni@testni			Not good		View

B2C view

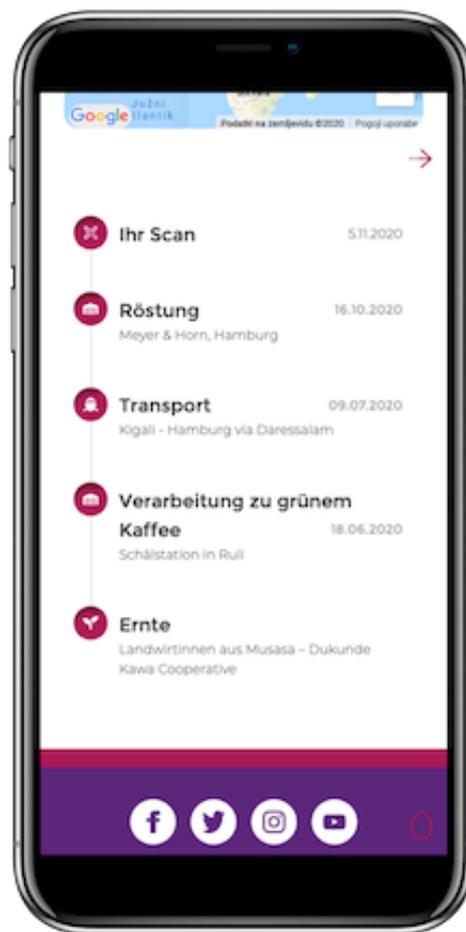
When scanning the published QR code (with the smart phone) on a package of the end product (SKU), containing customized URL, end user is redirected to a web page that contains the information of the brand, product, export batch (import/export quote action) and details about this specific SKU.

First page presents the brand, product and invites end user to explorer further.



Journey

Journey tab shows which steps were necessary to be taken in order for the coffee to land on a store shelf, i.e. harvesting, processing from red coffee beans to green coffee, transport, roasting. Map with locations pins shows how coffee travelled during processes.



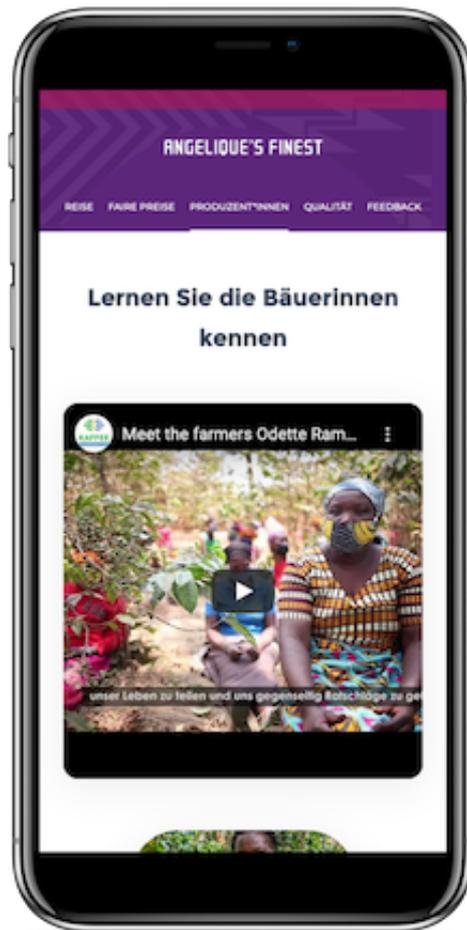
Fair prices

Fair prices tab gives a clear picture how the local producers were paid for the order, that this coffee package was part of, in comparison to the world market price and Fairtrade minimum price. There is also comparison how much more earn farmers for each kg of Angelique's Finest compared to coffee which is sold as green coffee.



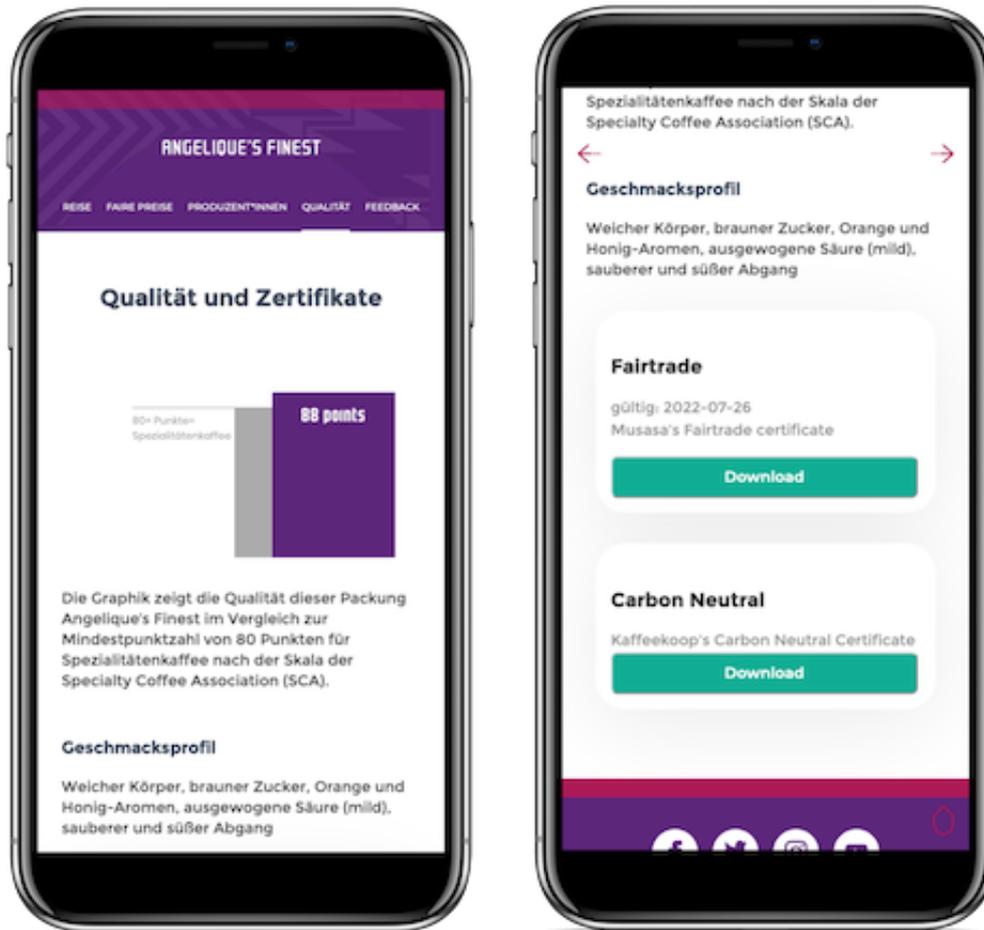
Producers

Producers tab introduces farmers, producer and processing story behind this coffee package.



Quality

Quality tab presents the quality score and flavour for the order, that this coffee package was part of. It also lists all certificates stakeholders of this product own, i.e. Fairtrade, Carbon Neutral certificate, ...



Feedback

Feedback tab allows end user to evaluate, describe and compare the coffee to other coffees and finally to submit the data.

Feedback

Die Produzentinnen von Angelique's Finest freuen sich über Ihr Feedback (Was mögen Sie an dem Kaffee? / Was mögen Sie nicht?).

Beschreiben Sie in max. 500 Zeichen

Bitte beantworten Sie auch die folgenden Fragen:

Wie schmeckt Ihnen Angelique's Finest im Vergleich zu dem Kaffee, den Sie bisher immer getrunken haben?

Wähle eine Option ...

2. Wie haben Sie Angelique's Finest zubereitet?
(Mehrfachauswahl möglich)