

Unova Blockchain Anti-Counterfeit Solution

Traceability Solution – Primal to Steak / Steak to Primal
(stage 2)

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2021-1172

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Project Description

AMPC's 2020-2025 Strategic Plan identifies within the Advance Manufacturing (pages 5-6), Sustainability (pages 7-9), Technical Market Access & Markets (pages 12-13), and Product and Process Integrity (pages 14-15) programs, specifically enabling:

1. Digitisation, via acquiring product, supply chain, and consumer information and leveraging data for insights (Adv. Mft.)
2. Sustainability, via underpinning Communities, Energy, Water, Waste, and Packaging claims
3. Marketing & Promotion, via offering a new premium value add to premium markets
4. Products, via understanding additional purchasing behavior (and enabling direct connection with consumers). New direct connection with domestic and global consumers could lead to leveraging new product ideas (e. g. Dairy Industry Oak direct consumer engagement - <https://oakflavourgenerator.com.au>)
5. Market access, via increased granular traceability systems
6. International Competitiveness, via ideally reducing manual compliance regulations
7. Traceability and integrity Systems
8. Animal Welfare, via communicating animal welfare practices to consumers that the relevant supply chain adheres to
9. Food Safety, via demonstration that forward and backward recalls are now possible to steak level.

As such although the primary goal for the innovation theme is a successful development(s) to enable operational primal to steak, and steak to primal traceability (hence a focus on Strategic Fit 7 above), it is expected that all stages and successful development companies will keep in mind both the primary and secondary goals in the context of the above nine(9) strategic plan touchpoints.

AMPC operated an innovation competition with this (and other) innovation themes. Following a widely practiced approach of other innovation investors (such as DARPA), AMPC where possible supported a number of providers with unique approaches during Stage 1 (and 2). As the stages progress the number of providers supported to the subsequent stages will be reduced.

In doing so, UNOVA was chosen to develop and demonstrate a cost-effective and robust primal to steak, and steak to primal, traceability and anti-counterfeit system as it was quickly realized that UNOVA's blockchain infrastructure and software platforms already entailed a very robust basis to build on when it comes to (among other things) traceability and anti-counterfeiting.

Project Content

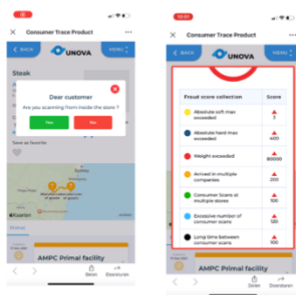
In accomplishing the above, general R&D was done first to select the optimal devices to create a closed system (blockchain infrastructure combined with required hardware devices). Next, developments were required for the hardware setup (including scanner, server, screen, scale, and label printer) to work in a live setting. Finally, multiple functionalities needed to be built on top of UNOVA's infrastructure to collect relevant data allowing for anti-counterfeit scripts and dashboards for both the companies and the end consumers.

Project Outcome

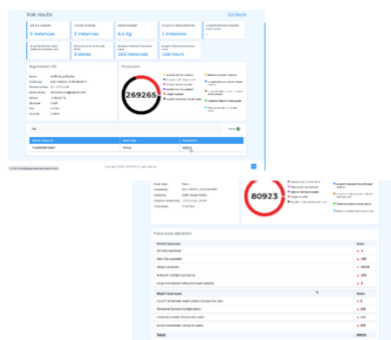
UNOVA's approach to offering a cost-effective primal to steak and steak to primal traceability system with anti-counterfeiting capabilities, as thoroughly described in the final report, has been developed and successfully demonstrated to AMPC staff. Together with AMPC, it was concluded that implementing the complete solution in a real-world supply chain, with all anti-counterfeiting measures in place as briefly shown in Figure 1 and explained in the table below, would not only benefit the industry with respect to their traceability objectives as also set out by AMPC (see Project Description) but would also result in less counterfeiting activities because of the difficulty of attempting in combination with the high risk of getting caught by both the supplier and the end consumer.

Application	Description
1. Consumer trace	UNOVA's consumer trace dashboard allows the consumer to scan a QR-code/barcode on a physical product and get access to full traceability and transparency data. An additional capability that is built on top of the existing application is that the probability of a particular steak being counterfeit is communicated to the end consumer.
2. Counterfeit flagging	The counterfeit flagging module will notify the suppliers of the meat on possible counterfeit behaviour. For doing this, multiple scripts have been written that run periodically inside the company's own node and monitor the customers validated and distributed data for counterfeiting behaviour based on certain conditions.
3. Application on the screen	The application on the screen allows for (digital) asset or event creations and the monitoring of the already created (digital) assets or events

Consumer notifications & traceability



Supplier Anti-counterfeit flagging and scripts



Blocking of counterfeit behaviour in primal to steak process

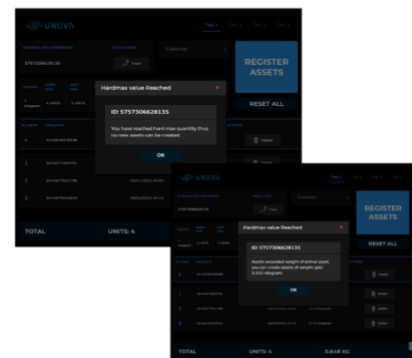


Figure 1: Brief overview of anti-counterfeiting measures

Next, the lessons learned during this phase allowed for a stage 3 submission describing:

1. The development path forward from stage 3 to adoption.
2. Minimum requirement of 3rd parties within a supply chain to comply with to ensure robustness (scope and pricing)

3. Requirements for the Australian source supply chain to enable adoption within their business (scope and pricing)

Future learnings during the implementation of the promising concept built will be crucial, as they will be opening the discussion with respect to:

1. Setting the basis for onboarding the entire supply chains (currently focusing on the primal to steak process)
2. Figuring out what is still missing / to be added
3. Additional R&D requirements needed for specific process/traceability/counterfeiting KPIs.

It is important however not to limit the value of UNOVA's system to solely deal with Primal to Steak traceability and anti-counterfeiting. Especially because the possibilities are complementary to AMPC's additional strategic objectives as described in AMPC's 2020-2025 Strategic Plan. Therefore, the final report includes an overview of topics to be discussed going forward in the next phases.

Useful resources

https://www.ampc.com.au/getmedia/4832a7b0-def8-4af4-8762-d91bb4cbac42/AMPC_StrategicPlan_2020_2025.pdf