Final report

Telstra and IBM Australian Agrifood Data Exchange Phase 2: Experiment 4 –Traceability

Abstract

The Australian AgriFood Data Exchange (AAFDX) project seeks to define and articulate the business case for investment in an industry designed and overseen data exchange with a vision to create "An interconnected data highway for Australia's AgriFood value chain". The purpose of the AAFDX is to provide a centralised mechanism for the exchange of data between participants in the agrifood value chain.

Milestone 6 is the culmination of a series of experiments (4) that were conducted to explore various applications and different methods of data exchange to deliver working prototypes to assist with informing the future business case. The experiments were delivered by four technology solution providers selected from an open market RFI process.

The experiments were delivered by each of the four technology solution providers in collaboration with industry, government, and research representatives. Each experiment focussed on a specific use case.

This report deals with Experiment 4 – Compliance and traceability for rock lobster quota in Western Australia, delivered by Telstra and IBM.

Telstra and IBM were awarded Experiment 4, as a consortium, in the Australian Agrifood Data Exchange Request for Information to solve for Western Rock Lobster managed fishery: Lack of pre-fishing data exchange to processors and delay in exchange and reconciliation of catch data results in delays in quota accounting impacting trip planning and efficient logistics planning; and ambitions for an end-to-end product traceability system.

Current Telstra/IBM integration of in-production capabilities into a Supply Chain Data Exchange providing secure permissioned sharing of standardised data by data owners was used to deliver value propositions for Experiment 4. Iterative development was conducted with stakeholders: Design; Measure with real users; Learn through incorporating insights from user feedback. The resultant Quota Accounting, Pre-fishing Logistics Planning, and Provenance and Traceability applications addressed initial frictions and surfaced further opportunities enabled by de-centralised data storage, and data management.

Key benefits to Western Rock Lobster and broader industry were: Operational efficiency through timely exchange of data enabling better fishing and logistics planning; Data and event validation and data governance with traceability and transparency, increasing trust between participants in the supply chain; Enabling industry insights and benchmarks from traceable supply chain events and additional data to improve sustainable fishery management and economic yield.

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1. Milestone description

The Australian AgriFood Data Exchange initiative offered an unparalleled opportunity to drive the next generation of productivity, profitability, and innovation across the agribusiness sector in Australia. We have argued for several years that such an initiative is vital if Australia is to maintain and increase its competitiveness in this sector globally and if it is to derive the maximum benefit from the decades of investment made in key data assets and world class R&D.

To provide the most complete and compelling set of capabilities, and to provide the initiative with a clear path to deliver its potential at scale, Telstra and IBM combined their capabilities, leveraging world-class platforms, extensive experience and expertise in data technologies and proven ability to deliver digital infrastructure at global scale.

The focus of our experiment was working with stakeholders of the West Coast Rock Lobster Fishery, which has remained a leader in ecologically sustainable fishing practices for more than 20 years. Accredited by the Marine Stewardship Council since 2020, and re-accredited 4 times, it maintains a high standard of management and control and provided willing stakeholders to participate in this experiment.

The main question being addressed in this experiment is whether disparate data sets from a variety of stakeholders can be connected to provide shared value to all participants of the supply chain. Through this experiment, IBM and Telstra demonstrated that traceability and provenance must be at the core of any supply chain data exchange solution, providing the necessary visibility and trust to each participant and ability to attached and share documents at each step, whilst also allowing future audit review and ensuring ownership is understood.

2. Project objectives

The objective of Experiment 4 was to demonstrate the timely flow and exchange of pre-fishing information, quota accounting data, and product (catch) data from WA DPIRD to Fishers and Processors in a secure and permissioned manner to enable better logistics planning, and data from Fishers and Processors to WA DPIRD to enable timely quota consumption accounting by WA DPIRD, and to demonstrate the viability of end-to-end product traceability.

The objective was met through a demonstration of a working prototype and validation of the value propositions and benefits demonstrated from Western Rock Lobster stakeholders.

3. Methodology

- The project team liaised with the working group to identify voluntary participants for the experiments
- We worked with selected participants to establish the common data model and process model for pre-fishing information, quotas, and real-time reporting of catch to use for the Experiment.
- Research and discovery were conducted to create personas for experiment participants

- Ethnographic research was conducted with experiment participants and broader stakeholders in the industry, resulting in the formulation of a comprehensive 'current state' supply chain map that details all the identified frictions and opportunities.
- Created hypotheses which led to value propositions that were iteratively developed with stakeholders.
- Validated benefits with stakeholders.

4. Results (to-date)

The results of this research are intended to form the basis of a solution that could be adopted in the fishing industry, but with generalisability and scalability a key design principle of the experiment to ensure that it's possible for the broader Australian Agri-food industry to leverage the solution we develop, given additional time and effort with willing stakeholders. The outputs of this experiment will provide value independently but will also be interoperable with other solutions as part of the broader MLA program of work. The key finding was that all experiment participants had a desire to adopt our solution and saw value in doing so, which was tested through the created of a proof of concept that leveraged representative data to bring to life what the solution would look and feel like in practice.

5. Success in meeting the milestone

The main target audience for this initial experiment was fishers, processors, regulators / governing bodies, and buyers / retailers so that we could demonstrate the end-to-end traceability capability, whilst showcasing the variety of benefits that can be unlocked for each of the stakeholders when adopting a common data platform.

The broader industry can take learnings from this experiment, with most of the benefits the project participants validated in this experiment also being possible to achieve on other supply chains or in other industries, such as leveraging a decentralised data exchange to improve trust amongst supply chain participants, reduce processing times, gain operational efficiencies, gain granular supply chain visibility, create the ability for more targeted product recalls, automate data sharing and regulatory requirement adherence, and meet consumer demand for provenance and traceability information.

6. Overall progress of the project

The project is progressing as planned. An accelerated timeline for delivering the Australian AgriFood Data Exchange business case has been proposed and accepted by MLA.

For Milestone 6 specifically, draft reports have been received. Final reports (both versions) will be shared on 29th April – in line with the agreed upon deadline.

7. Conclusions/recommendations

Based on the results of the project, we recommend transitioning the proof of concept in to an operational pilot within the seafood industry to further prove its applicability and value add, as well as conducting further proof of concepts in different Agri-Food products to demonstrate the generalisability and scalability of the designed solution. Ultimately, the output of this experiment could be adopted across an entire supply chain with production-grade software already, which would provide the first foundations for an Australian Agri-Food Data Exchange.