

# MONASH INDUSTRY TEAM INITIATIVE (MITI)

## Artificial Intelligence and Blockchain – Cow to Consumer

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### Background

Bega Cheese is the one of the largest Australian companies in the dairy sector, producing cheese and other food products.

### Project Scope

To explore the feasibility of implementing Artificial Intelligence (AI) and blockchain in their manufacturing and supply chain, to improve efficiency and traceability, respectively.

To narrow the scope of the project, we focused on the 2kg cream cheese production line. Our research focused on the complete supply chain, from cow to consumer. This was split into:

- Milk testing
- Demand planning
- Manufacturing process
- Warehouse automation
- Marketing
- Blockchain

### Methodology

- Visited Tatura cream cheese factory and a farm to understand the whole manufacturing process.
- Meetings with different departments across the supply chain to better understand challenges with existing systems and processes and to identify potential opportunities.
- Conducted research and data analysis for the topics above.
- Conducted market research on alternative solutions using AI.
- Collaborated with external companies for product demonstrations.



### Recommendation

- Collaborate with farmers and encourage them to use the latest technologies that can treat subclinical and clinical bovine mastitis non-invasively.
- Install sensors in the manufacturing assets that can measure performance data, such as vibration, temperature, sound and etc.. Capture real-time data from these sensors and conduct predictions on asset's health using AI. This will help in reducing cost associated with machine breakdowns and maintenance.
- To make use of the latest demand planning tools that can leverage machine learning to analyse demand patterns better in real-time.
- Utilise data analytics and machine learning capabilities to optimise manufacturing processes and reduce product give-away.
- Implement blockchain technology to significantly improve the tracking and traceability of products and give customers more confidence in the origin of Bega's products. But blockchain's true power can only be observed by collaborating with every stakeholder in the supply chain, which can be challenging.
- As an alternative to blockchain, implement QR codes on final products for customers to scan. These QR codes can contain Bega's internal product information, such as the cheese's production date and the date the milk was collected from the farm.