Milestone report

Milestone 7: Final Report

Project code:	P.PSH.1225
Prepared by:	Kate Morrison Era Innovation
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Meat & Livestock Australia Limited
PO Box 1961
NORTH SYDNEY NSW 2059

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1. Project Introduction

Jims Jerky identified several growth strategies within the snacking category from their 2017/18 MDC project P.PSH.0811 – this included the need to explore export markets as well as products beyond jerky as consumers continue to desire high protein snacks. During 2019, several concepts were made by Jims Jerky as requested by MLA in support of MLA's Singapore focus groups where different textures and occasions were being tested to better understand ASEAN meat snacks such as foods for an ageing population, women-on-the-go low in iron content and millennials sharing when watching sport etc. This opportunity, along with awareness of the technology platform (MLA project P.PIP.0548) becoming available saw Jim's Jerky complete preliminary sample batches of meat chips with positive feedback from leading retailers in Australia for a crunchy beef chip.

This project has built on this momentum to develop and soft-launch meat chips into the Australian market. The project has continued to validate the production and consumer and market insights for a beef chip, as well as pre-commercial market trials. As a result of project activities, preliminary support has been secured to be included in forthcoming range reviews in the Snacking category at a major Australian supermarket. There is also commercial interest for exclusive distribution rights from a significant export customer.

2. Milestone 7 Description

This Milestone summarises the activities, outcomes and value created by this project, as well as next steps and further commercialisation opportunities identified as the project has progressed, captured in a completed Business Model Canvas.

The work undertaken in this milestone therefore represents a comprehensive overview of the project in its entirety and value created for all stakeholders as a result.

3. Project Objectives

The project has pursued the following objectives to commercialise the new Beef Chip innovation:

- Engage with targeted retail buying office and present meat snack concept and positioning to gain support for trial/roll-out.
- Develop product brief and marketing mix – validate yields, quality and costings and complete consumer research on targeted early adopter.
- Undertake market study, including analysis of category competitor analysis and validate who the target market/customer is and what "jobs are to be done" and "path to purchase" for meat chips.
- Refine product and process specifications and produce trial batch for launch and in-market testing to test assumptions and determine key insights.
- Finalise Business Model for scale-up – record on Business Model Canvas tool key forces and partners to succeed and desirability-feasibility-viability criteria. This is to include a detailed cost benefit analysis that captures what value has been created and captured in transforming red meat input into meat chips products and manufacturing capacity modelling at Jim's Jerky production facility and raw meat supply.

This Final Report represents a case study of the experience in meat chip prototyping and in-market launch and testing, including development of export strategy for meat snacks based on key findings and lessons learnt.

4. Methodology

4.1 Overview

Each of the six preceding Milestones for the project has utilised different methodologies depending on the specific objective of the Milestone, as shown in Table 1.

Milestone Reference	Objective	Methodology
1	Contract execution and kick-off meeting	Preliminary business model canvas tool with key assumptions
2a	Develop preliminary product & pack concepts & process flow and commence equipment leasing as required.	1. Process Flow Concepts 2. Product Development (texture/flavour) 3. Brand/Pack Concepts
2b	Validate process yields, formulations, costings and shelf life and market insights	Ongoing validation of process yields, flavour formulations, actuarial costings, shelf-life validation trails and commissioning of external (UQ) market insights research
3	Receive commercial equipment to manufacture trial quantities, present concepts to retailers and secure support to rollout trial launch.	Trail equipment and engage with retailer
4	Prepare for execution of market testing strategy	Finalisation of supply, operational, pricing, packaging, brand, and e-commerce requirements
5	Execution of market testing strategy	Market trials via three channels: a) In store b) Food service c) Online
6	Benefit cost analysis	Enterprise profitability evaluation Results Chain analysis Lessons learned
7	Final Report (this document)	Completed business model canvas

Table 1. Overview of Methodology for Beef Chip Commercialisation Project

4.2 Business Model Canvas

The Completed business model canvas included in this Report identifies which assumptions have been validated to date and where further tests are required to prove out the economic viability of the innovation.

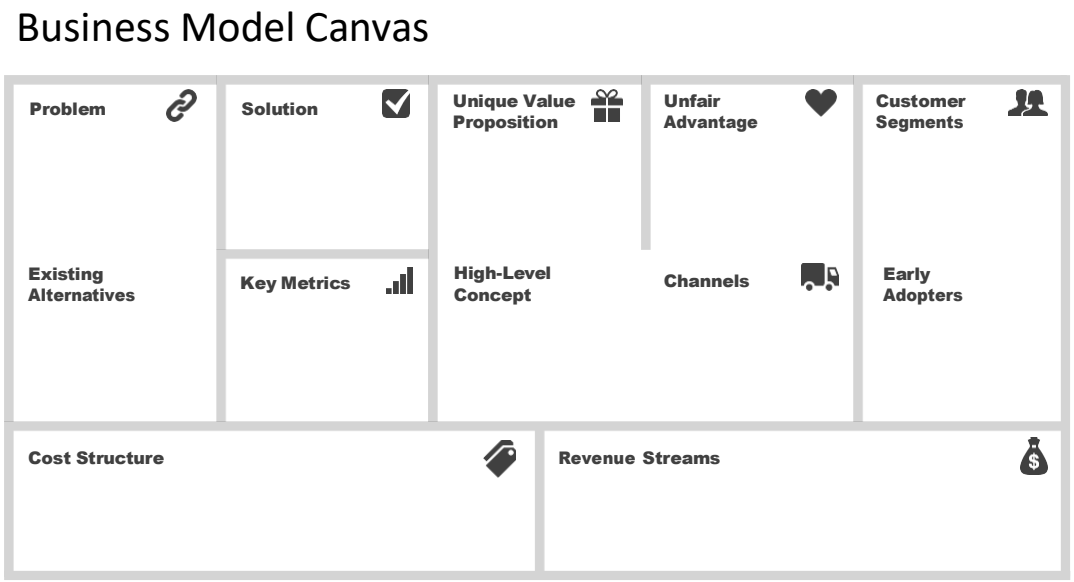

Figure 1. Business Model Canvas

5. Results

5.1 Milestone 1

The project commenced with several assumptions and untested hypotheses around the value proposition, processing technologies and business model for a beef chip.

5.2 Milestone 2a

This milestone engineered an initial manufacturing process flow against the following criteria

a) Fast
b) Efficient
c) Enable large quantities to be produced
d) Cost effective
e) Maintain product integrity

The challenge to be overcome was updating a highly intensive and 'hands on' process to an efficient, automated process. The 4 key pinch-points were identified as raws preparation, chip formation, transfer to drying racks and application of flavour.

Product formulation was also tackled, resulting in a prototype product in which beef is the primary ingredient, but that eats like a potato chip. This required numerous attempts to successfully address the two key pinch-points of ingredients and flavours.

Finally, this Milestone produced an initial brand concept which was tested formally by the WatchMeThink ethnographic process. Consumer feedback emphasised that the jerky branding (the Jim's Jerky logo) confused consumers as the expectations of 'chips' verses the 'jerky' meant they didn't know what to expect with the product, which influenced a decision not to purchase due to the 'unknown'. This resulted in a decision from this Milestone to create a new brand for the product.

5.3 Milestone 2b

This milestone covered a range of workstreams to advance the product toward commercialisation, namely:

- Ongoing validation of process yields – in light of appropriate equipment being identified and commissioned.
- Flavour formulations – via engagement of a product development specialist at Creative Cuisine to develop a beef specific chip flavour range, considering product specific pH levels, and an application system for the flavour to the chip surface.
- Actuarial costing – to establish ROI thresholds and expected payback periods.
- Shelf-life validation trails – focusing on aw (water activity) and oxygen presence in the pack;
- Consumer insights – via commissioning of external (UQ) market insights research, to establish initial parameters for:
  - Pack size
  - Recommended retail price
  - Planogram placement
  - Call out hierarchy

5.4 Milestone 3

Significant delays caused by COVID caused a four-month interruption to expected equipment delivery timeframes, with the result that terms of the lease agreement could not be met and Jim's Jerky was required to take on the costs of purchasing the equipment outright. Spend for this milestone instead was targeted at product prototype development activities including batch processing tests, temperature, recipe and pace testing, process and food safety verifications and flavour profile development. In total, 77 trials were performed to this point, covering:

- drying temperatures and drying times.
- processing temperatures and times.
- ingredient testing in processing – including ruling out variations of ingredients that were unsuccessful in shelf-life trials.
- integration of preservation and flavour variations at different stages of processing, including post-drying.
- development of product specific flavour profiles including variations in product PH.
- validation of food safety critical control points.

In addition, direct consumer research undertaken during the milestone via the existing Jim's Jerky customer base provided early indications that 71% of respondents were likely or very likely to purchase the chip product, with just 4% unlikely to purchase.

5.5 Milestone 4

This Milestone focused on preparation for execution of the market testing strategy, including finalisation of supply, operational, pricing, packaging, brand, and e-commerce requirements

A specific focus was on the operational side, with new customised equipment commissioned, received and in part, redeveloped, to support the novel production methods required for the meat chip. This required more than 120 separate manufacturing trials. To accommodate these trials, the existing Jim's Jerky factory was completely reconfigured, processes re-mapped and new capacity modelling undertaken to ensure the feasibility of ongoing chip production considering existing production demands on the factory. All these activities informed updated costings for initial go-to-market volume requirements.

Milestone 4 also finalised the product ready for market trials, with multiple production runs and tight raw material specification ultimately producing a chip that is consistent in texture, mouth feel and ability to carry flavour, as shown in Fig 2.

Figure 2. Product consistency achieved through RM specification

Milestone 4 also produce final prototype pack designs for the go-to-market trials, as shown in Fig 3 below.

Figure 3. Final prototype pack designs for go-to-market

However due to significant delays in supply chains, the rewind packaging ordered by the Jim's Jerky team, placed in January 2022, had still not arrived in time for market trials to commence. To address this issue, interim pack stickers were designed to allow the products to be tested in market. Three interim pack stickers were developed in line with the flavours created for the product launch, as shown in Fig 4 below.

Figure 4: Final Version of Interim Pack Stickers Developed for Market Trials

5.6 Milestone 5

Milestone 5 undertook trials for the 'market ready' version of the Beef Chips via three channels. Trials were deliberately designed to allow feedback to be collected while protecting the IP position as the provisional patent application was still underway at this time.

1) In Store: approximately 100 units were tested by visitors to our head office at Charlton.
2) Local Food Service: placement of the products in a 'live' food service environment to obtain feedback from the demographic typical of our region.
3) Online: approximately 100 units were sent to our 'platinum jerkaholics' who had agreed to be part of market testing. Feedback from this cohort was collected through a structured questionnaire.

Substantive qualitative feedback was provided on flavour, texture, and mouth feel – almost all positive apart from 1-2 comments regarding the perceived degree of saltiness (since adjusted in flavour formulations).

Overall willingness-to-pay was estimated as shown in Table 2 below.

No of Respondents	28	33	23
Wtp for 30	$ 3.50	$ 4.50	$ 5.50
Per g	$ 0.12	$ 0.15	$ 0.18

Table 2. Overview of Willingness To Pay Data from Milestone 5

Feedback from the market trials was used to inform our development of consumer archetypes relevant to this value proposition, as shown in Fig 5.

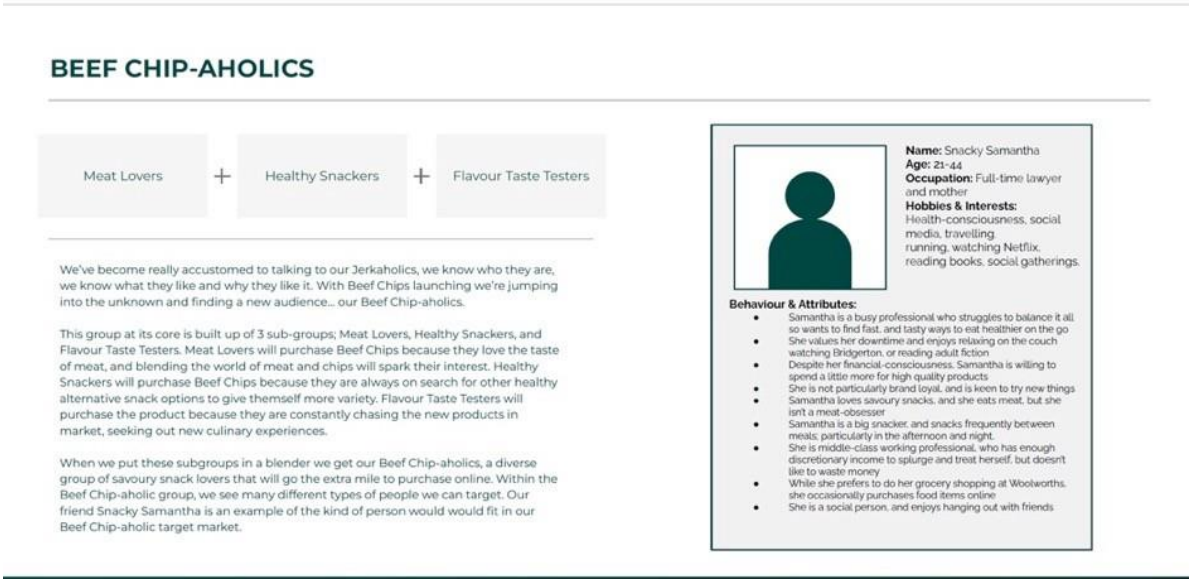

Figure 5. Beef chip consumer archetype

As a result of feedback obtained during Milestone 5 activities, the brand concept for the Beef Chips was further refined as shown below in Fig 6.

Figure 6. Refined Beef Chip brand and packaging concept

5.7 Milestone 6

Milestone 6 produced a multi-level benefit cost benefit analysis, using three methodological approaches to understanding and capturing value creation over the lifetime of the project, based on and extending the tools and frameworks recommended by MLA:

(i) **Enterprise profitability evaluation**: based on product costings and pricing to analyse incremental value creation from initial raw material input (retained as commercial-in-confidence).

(ii) **Results Chain analysis**: to project volume demand potential for raw material because of driving adoption of the beef chip (this will require market growth to be tracked over time).

(iii) **Lessons learned:** identifying key insights for improving the chances of success for other commercialisation projects.

The results chain populated for the project identified target impacts at multiple levels beyond the business itself, including market, industry, and producers, as shown in Fig. 7.

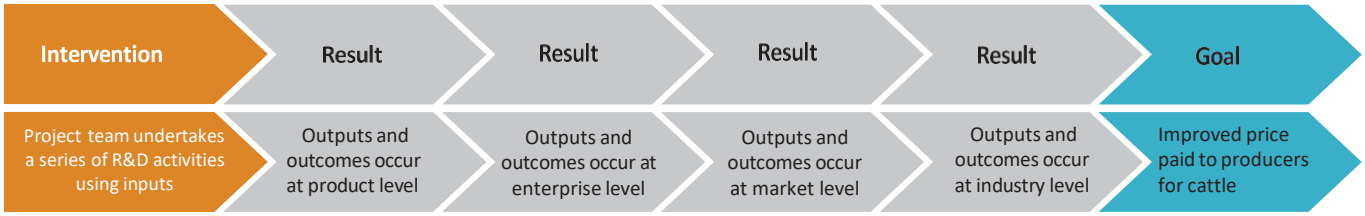

Figure 7. Results Chain for Beef Chip Commercialisation

Analysis was undertaken to quantify the types of scale dynamics that would be required for the above results chain to ultimately impact the price paid to producers for cattle. The assumptions and logic for this analysis are set out below.

Firstly, several assumptions have been made about the scale of the Australian cattle industry and the relative volume of the relevant raw material for beef chip production (85-95CL TRIM) within this system, as shown in Fig. 8.

Assumptions at industry level for beef chip results chain analysis		
Avergae no of cattle slaughtered per year in Australia	3,000,000	bodies
Kg of LEAN TRIM (85CL) per carcase	7.5	kg
Total amount of LEAN TRIM produced in Aus system p.a.	22,500	MT
Percentage of LEAN TRIM market to penetrate for price impact	5%	
No of KG of LEAN TRIM to buy to influence price	1,125,000	KG

Figure 8. Assumptions at Industry Level for Beef Chip Raw Material[i]

Second, several assumptions related to scale up of production have been made based on our existing knowledge of the recipe, RM yield loss and manufacturing process, as shown in Fig. 9.

Assumptions at production level for beef chip results chain analysis		
Finished product % from RM	73.26%	
Pack size assumed	30	g
Packs per KG of RM used	46	packs
No of KG of FP required to impact RM price	1,535,627	KG
No of packs produced at target FP vol	69,871,077	packs
Total MT of FP at target scale	2,096	MT

Figure 9. Assumptions at Manufacturing Level for Beef Chip Scale Production

The projected volumes above can be used to track actual sales levels over subsequent years to gauge the likelihood of impact on raw material prices.

In terms of Lessons Learned, the project identified the key results shown in Fig. 10.

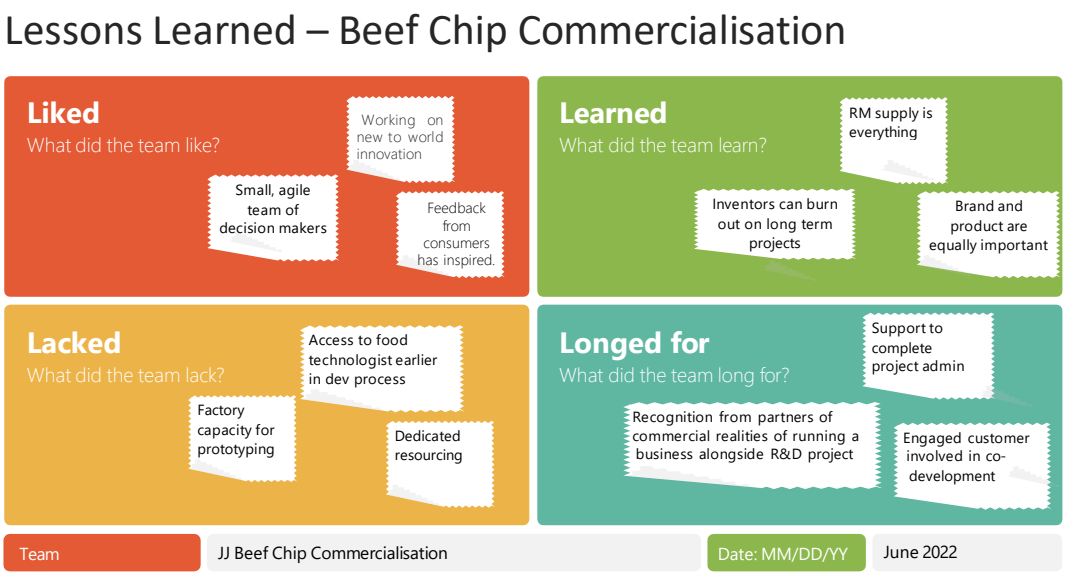

Figure 10. JJ Team Lessons Learned – Beef Chip Commercialisation

The conclusion of the benefit cost analysis was that while the results demonstrate that a small business is capable of innovating to world class standards with the support of industry entities such as MLA, and the scale opportunities are significant, there remain many steps to be undertaken for full commercialisation and return on investment to be realised.

This result emphasises that development of an operationally functional manufacturing process and market-acceptable product, while necessary, are not sufficient to fulfil all the requirements of a successful commercialisation process.

6. Updated Business Model Canvas

The Business Model Canvas allows description of the key strategic elements that combine to create a successful and sustainable flow of profits around a particular value proposition.

The undertaking of the activities in this project have informed the updating of the Business Model Canvas for the Beef Chips value proposition.

Feedback received from market trials has been especially important in informing the refinement of the core value proposition, which is now centred on the satiety-creating benefits of the very high protein content of the product

As well, it appears shoppers in the non-health sub-category of snacks are drawn to fun, light-hearted branding that confers a 'permission to indulge'. This finding has significant implications for the branding and overall go-to-market strategy for the product, which are currently being implemented in our packaging design, brand messaging and commercial approach.

Finally, recent feedback obtained from importer / distributor partners in key target export markets in Vietnam and the US have indicated that there will be significant opportunities to target growing meat snack markets where consumers demonstrate willingness to pay a premium for innovative new products. In Vietnam for example, via one importer/distributor partner the opportunity scales to approximately 30,000 units per month, the equivalent of 10.8MT annually.

7. Conclusion

The project has shown that a small business is capable of innovating to world class standards with the support of industry entities such as MLA. While the scale opportunities are significant, and the profitability potential of the product is clear, the project has also demonstrated that multiple pivot points can be expected in the commercialisation pathway of a novel product, and that deliberate learning and generation of feedback is critical to optimising the chances for commercial success.

REFERENCES

[i] Weight of LEAN TRIM per carcase sourced from https://futurebeef.com.au/resources/saleable-meat-yield/ accessed 18 June 2022