final report

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Exploring High Valued Opportunities for Natural Flavour and Wellness extracts derived from red meat (2Morrows Foods)

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Executive summary

Why the work was done – problem to be addressed

The parts of the animal, other than the red meat, are largely considered to be of secondary value. Yet many possess either strong taste (i.e. tallow) or health (i.e. bones) properties, though generally not both. However, they are often considered by consumers to be undesirable, as we have long since moved away from a 'nose to tail' diet, to only consuming the best bits. Whilst it is a tough ask to get consumers to embrace products like offal, in their basic form, there is the opportunity through new processing technologies to bring their more desirable properties to the fore, in new tailored solution offerings. This work was done to explore three opportunity spaces for secondary components of the whole animal to assess if it is worthwhile undertaking further development to realise these opportunities.

How it was done

A design led methodology was used to test the opportunity spaces. Initially the dynamics of each opportunity space was assessed, looking at emerging themes and assessing existing offerings within the relevant categories. Through assessing the fundamental properties of these secondary animal components (i.e. Bovine Collagen) and the role new processing technologies can play, hypothesized Value Propositions were developed against a target customer who it was felt would value the offering. These hypotheses were validated through ethnographic consumer research, where concept statements, representing the Value Proposition were shared and reactions assessed. Finally, for each concept Minimum Viable Products were developed and tested with target consumers to assess if the offering was able to live up the Value Proposition promise.

What was achieved

Two of the three opportunity spaces have produced results that are well worth further consideration.

The Renaissance of Tallow Fries – the superior chip: Whilst lost in time, due to long-since debunked concerns about saturated fats, exposing a generation that has never experienced them before, resulted in a hugely positive reaction to their taste and overall eating experience. Testing in a real-world situation, one that we felt suited this offering – at a premium burger joint, they were seen as being delicious in their own right, as well as a better accompaniment to a burger, than existing / regular vegetable oil cooked fries. Whilst this was only a small-scale test, the results are very encouraging, with questions surrounding Feasibility also explored as part of realising a value-added future for Beef Tallow.

Bovine Collage for Tendon and Joint regeneration: Males in their 40's and 50's who seek to maintain their sporty ways, are let down by their ageing bodies. But whilst many dimensions of their physical performance have only declined marginally – i.e. endurance and strength, other aspects have a far greater impact. Most of this target customer experience tendon and joint pains that severely limit their capabilities. Whilst this target customer is hesitant to many solutions that could address this issue, a daily, natural bovine collagen tonic is seen as offering the best hope for maintaining the body's ability to perform at levels of yesteryear.

Chips (crisps) with real meat flavour: This concept had mixed reviews, so a question mark remains over if and how this opportunity could be realised. At a concept level, the idea of real meat flavour was highly appealing, though some concern existed about actually putting real meat on a chip. On the positive side, it was seen as being the ideal platform for further Premiumisation of chips, potentially taking them into usage occasions which existing offerings are just not sophisticated enough to deliver on. However, the MVP was a long way from delivering on the Value Proposition, with the fundamental properties of what makes a chip, a chip, not delivered on – saltiness and flavour intensity. This brings into question whether a it is possible for a solution to be developed that can realise the Value Preposition.

Industry benefit that has been realised

Two of the three opportunity spaces; Tallow Fries and Bovine Collagen, represent significant value-adding growth opportunities for the red meat industry. The identification of suitable Commercial partners and associated investment are required to further develop these opportunities through the 'Develop' and 'Deliver' stages to realise sustained commercial success.

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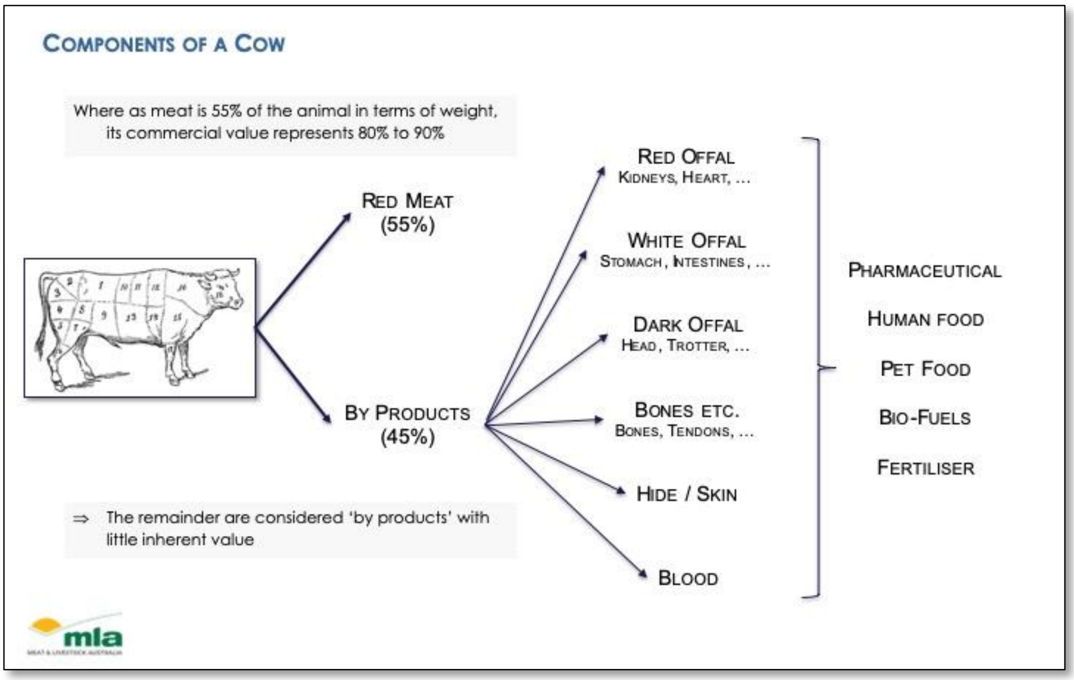
1 Background

1.1 Meat extracts in the context of overall carcass

The total weight of a cow far exceeds that of the meat alone, for a cow is made up of many other components, such as the different types of offal, the bones, blood etc. Whilst there is a great deal of value in the red meat, the other components are considered to have little commercial value. It is stating the obvious, but in order to derive greater value from each cow, requires not only maximising the value of the meat component but seeking to gain value from these other secondary components of the animal.

Meat has two fundamental properties that are highly valued – it tastes great and it possesses strong nutritional benefits. Whilst we tend to think of meat in its primary form – as a food that tastes great and is good for you, there is the potential to isolate these properties so their value can be maximised. Focusing on only one of these properties opens-up the possibility of using a currently 'low valued' part of the animal carcass that delivers in only one area

- i.e. the interconnecting muscle tissue, that is highly nutrient dense, but is 'gristle' when it comes to enjoyable eating.



1.1.1 Meat as a Key Flavour

It is recognised that Red Meat is a highly desirable flavour, as evidenced not only by consumers preference for it in its primary form, but by the number of consumer products that are meat flavoured as a leading version – i.e. Chips. It is also recognised that the Umami flavour, that is most prominent in cooked red meat, delivers to key taste receptors on the tongue.
Thus, it's believed that red meat extracts can deliver superior flavours to existing Food Tech processes that are used today, significantly surpassing existing meat booster flavours that are used in many of these offerings today.

1.1.2 Meat as a Key Nutrient

Meat has many health properties that elevate it above other 'hero ingredients' – such as its high, readily available levels of Collagen. Beyond food, there are other high value market sectors, that meat has not previously played in, where these properties could be the foundation of a winning Value Proposition. Collagen as a focus provides a range of opportunities, with Health & Wellness and Beauty potential examples of this.

2 Project objectives

The objectives of the project are to identify several opportunity spaces MLA should consider that provide significant value-adding potential for the red meat industry. It is envisaged that these opportunity spaces will span:

- Authentic flavourings for 'ultra-premium' snack foods
- Bovine Collagen for beauty rejuvenating (defying one's age), though our focus shifted to a health and wellness angle - the regeneration of failing joints and tendons
- Tallow as a deep-frying oil (added in as the project evolved)

3 Methodology

3.1 Following a Design Led Innovation Method

3.1.1 Assessing what is technically possible

With newly available technologies, what properties of Red Meat are able to be isolated and thus brought to the fore:

1. What are the fundamentals of Red Meat – what is inherent within it (Existing MLA reports on nutritional properties)?
2. Discussion with MLA's Michael Lee to review the new technologies and alternative offerings and discuss their merits (push innovation approach) to identify target sectors.
3. Identify target sectors for assessment of emerging dynamics – i.e. Beauty

3.1.2 Assess emerging themes in target sectors

Review target sectors, identifying the emerging themes driving new consumer choice

1. What consumer drivers are re-shaping these sectors
2. What new offerings are coming to the fore and needs are they meeting (i.e. Turmeric & Anti-inflammatory)
3. What properties of Red Meat are already finding a role in this landscape (i.e. Collagen and Skin firmness)?

3.1.3 Develop hypothesised Value Propositions to target alternate opportunity spaces

Where we believe ‘Natural Meat Extracts’ can achieve market success.

1. Identify the ‘angles’ deemed worthy of consideration.
2. Identify target consumer and ‘pain points’ / un-met needs
3. Identify competitive set & develop initial value proposition

3.1.4 Test Value Propositions in the market

With short sprint exercise to validate potential. This research would take the form of ethnographic interviews.

1. Understand existing choice dynamics – what currently using & why
2. Share Value Proposition (in concept form) - Assess appeal of new offering
3. Assess if / where new offering would fit into their lives – validation of Value Proposition

Note: A maximum of 3 sectors to be assessed within the scope of this project

4 Results

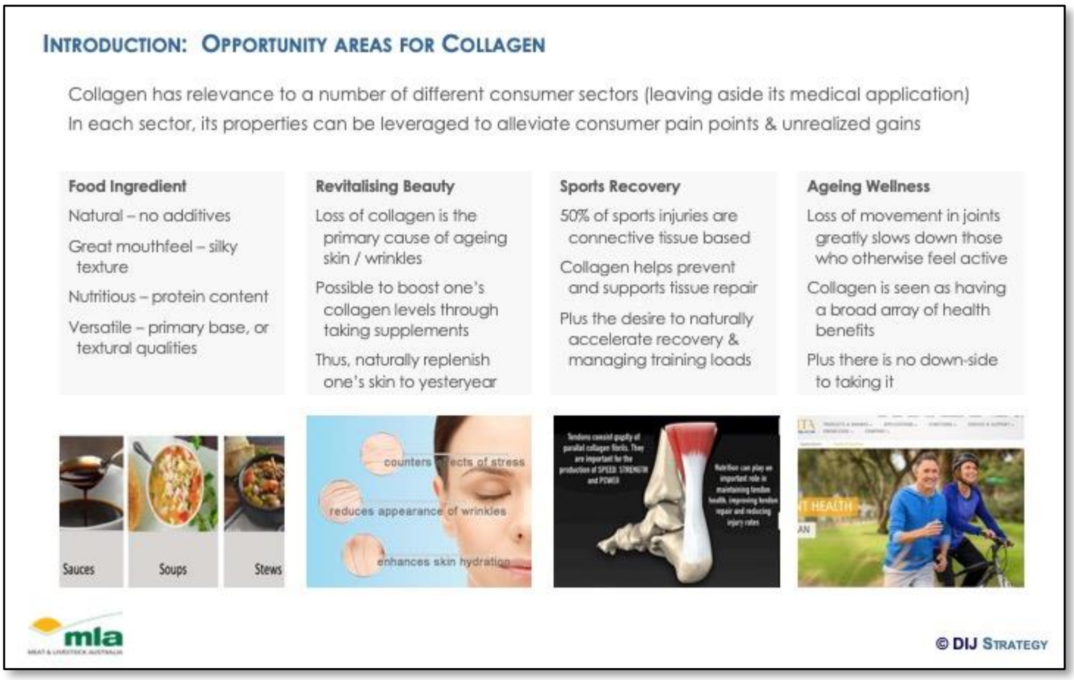
4.1 Opportunity #1. Bovine Collagen for Joint & Tendon Regeneration

4.1.1 Opportunity Space

Collagen is our most abundant protein and helps give structure to the hair, skin, nails, bones, ligaments and tendons in our body, as well as digestive system. Thanks to collagen, we're better able to move, bend and stretch. Collagen is also behind keeping skin looking youthful, helping hair shine and nails stay strong.

As we age, and the more stress we put on our body, the greater the impact on collagen production. Getting collagen in a balanced diet can help our bodies regenerate what's been lost or broken down. Research indicates that by the age of 40, the body's ability to produce collagen decreases by 25%. By age 60, it has decreased by over 50%.

However, our move away from a 'nose to tail' diet, to only consuming the more 'delicious and accessible' parts of an animal, has removed the primary source of collagen from our diets. Yet in Japan women have been using marine collagen for over 300 years. It's part of their daily diet: people go to a restaurant and have their meal infused with collagen; they go to their supermarket & collagen's available; they go to the gym and there are collagen drinks on offer.



There are different types of Collagen, that perform different functions within the human body – the main types being type I, II and III.

Type I & III Collagen make up 90% of the Collagen in the human body. Types 1 & 3 may support skin, muscles, bone health, and hair and nail growth and maintenance. There are 19 amino acids (proteins) found in Collagen Types 1 & 3 – each essential to functions and maintenance within skin, muscles, and bones. These types are produced by fibroblasts (cells in connective tissues) and osteoblasts (cells that make bones).

Collagen **Type II** protein makes up the fluids and function in the cartilage and joints. The diminishing effects of reduced collagen Type 2 are less obvious and often go unnoticed or are considered “normal” for the aging process – most obviously associated with ‘slowing down’.

Collagen Type 2 for Joint and Cartilage Support.

makes up 50-60% of protein in cartilage

makes up 85-90% of collagen in articular cartilage

may reduce popping knees & support back, jaw, and joints

includes glucosamine, chondroitin, and hyaluronic acid

Bovine Collagen is thought to have potential as a supplement for Revitalising Beauty - Females who are starting to show their age. However, this is a highly complex market, with both rational and more importantly emotive drivers. It was concluded that a dedicated project would be required to explore the Revitalising Beauty opportunity.

Double-blind studies in Germany, for example, have looked at the effects of 2.5-5 grams of animal-derived hydrolysed collagen in women aged 35-65 over eight weeks. Those who received the collagen rather than the placebo were assessed as having improved skin elasticity, moisture, and roughness, as well as less trans-epidermal water loss (which leads to dry skin), with women aged 45-65 enjoying a significant reduction in eye wrinkle volume (of 20-50%). (see: https://www.ncbi.nlm.nih.gov/pubmed/24401291 - R)

Some research suggests that hydrolysed collagen may support cartilage formation and help reduce pain from osteoarthritis. In one review, collagen hydrolysate was deemed to be well absorbed orally, to accumulate in cartilage, and to stimulate cells called chondrocytes to produce new connective tissue. This review also noted that collagen supplements have been associated with significant reductions in osteoarthritis pain and improvements in function compared to placebo. (Proksch et al, 2014 R)

In one study, people with knee osteoarthritis who received 10 grams of type 2 collagen alongside 1500 mg of acetaminophen daily for three months had greater improvements in walking scores compared to those just receiving the acetaminophen. Both groups had improvements in joint pain, function, and quality of life. (Bello et al, 2006 R)

Collagen supplements have also been associated with some benefits for athletes, which makes a certain kind of sense given that active bodies need additional protein to build and maintain strong and healthy muscles and joints. In one study, 24 weeks of hydrolysed collagen (10 g/day) supplementation was associated with significant benefits for joint pain compared to placebo in students on varsity teams or in sports clubs. (Clark et al, 2008 R)

The opportunity space that was felt to offer the greatest potential for a value-added Bovine based collagen offering was as a Wellness tonic for those 'starting to feel their age'. Whilst the elite sports performance area has the scope for highly value-adding offerings, it is dominated by Peptide based formulations, offering little scope for value-adding at the base input ingredient level.

Our target customer is a male in their 40's or 50's, particularly those who have been active / sporty through their lives and notice a significant decline in their physical capabilities. Of greatest concern is that their tendons and joints no longer provide as much free-movement, and this hampers an overall feeling of wellbeing. Many people, at this age, complain of having a sore knee, achilles or shoulder. There are a range of collagen-based recovery and rejuvenation offerings, though the source of collagen is typically not identified.

It is hypothesized that it is active males in their 40's and 50's who could most benefit from a natural collagen supplement, as they are largely cynical towards sports supplements, particularly for ongoing consumption.

4.1.2 Leveraging Previous Learning's

MLA report V.RMH.0079 – Collagen Business Case Report (see: https://www.mla.com.au/download/finalreports?itemId=3811)

1. Focus on high-value opportunities - the nutraceutical market segment. Countries such as Brazil and China can undercut Australian collagen producers

2. Marketing of BSE-free status - Australia's BSE-free status is a significant competitive advantage and will be a key selling point

3. Growing demand for Halal / Kosher certified products - Marine is also able to cater to these consumers, so BSE-free countries will service the growing demand

Identification of Initial Opportunities

The recommendations from V.RMH.0079 were reviewed and considered as part of identifying future opportunities. However, each was dismissed for various reasons:

- In the nutraceutical area, companies develop their own patented offerings making the input ingredient a commodity

- BSE free status has some potential relevance, though a more positive message is felt to be more motivating (i.e. Grass Fed)

- Marine and Chicken Collagen are the key competitors in the areas considered, not porcine based

V.RMH.0059 – Scoping the functional properties of red meat and opportunity spaces in preventative health (see: https://www.mla.com.au/research-and-development/search-rd-reports/final-report-details/Scoping-the-functional-properties-of-red-meat-and-opportunity-spaces-in-preventative-health-and-wellbeing/3620)

The two opportunities selected were 1) controlling blood glucose with high protein meat-based snacks and meals and 2) lowering blood pressure with red meat solutions rich in anti-hypertensive peptides. In Australia, diabetes is one of the fastest growing chronic conditions (1.7 million) and almost a quarter of the population (6 million) suffer from high blood pressure.

Identification of Initial Opportunities

In the areas of focus, it has been shown that consumers are receptive to red meat-based offerings that provide functional benefits to address health conditions

V.RMH.0074 – Review of meat bone by-product processing platforms and high value opportunities and trends (see: https://www.mla.com.au/research-and-development/search-rd-reports/final-report-details/Review-of-meat-bone-by-product-processing/3859)

An evaluation of current bone by-product streams such as broths and sauces, gelatine, fat, pet food, including packaging and process design and intended use and market pricing. A description of key technology criteria for commercialisation of bone by-products streams such as broths and sauces, gelatine, fat, pet food – including enabling technology platforms.

Identification of alternative Processing Technologies

A number of different processing technologies were reviewed, with an assessment of their relative merits:

- Coctio bone broth processing facility,
- Identification of potential consumer collagen-based concepts,
- Gelita as a global leader in patented Collagen based offering.

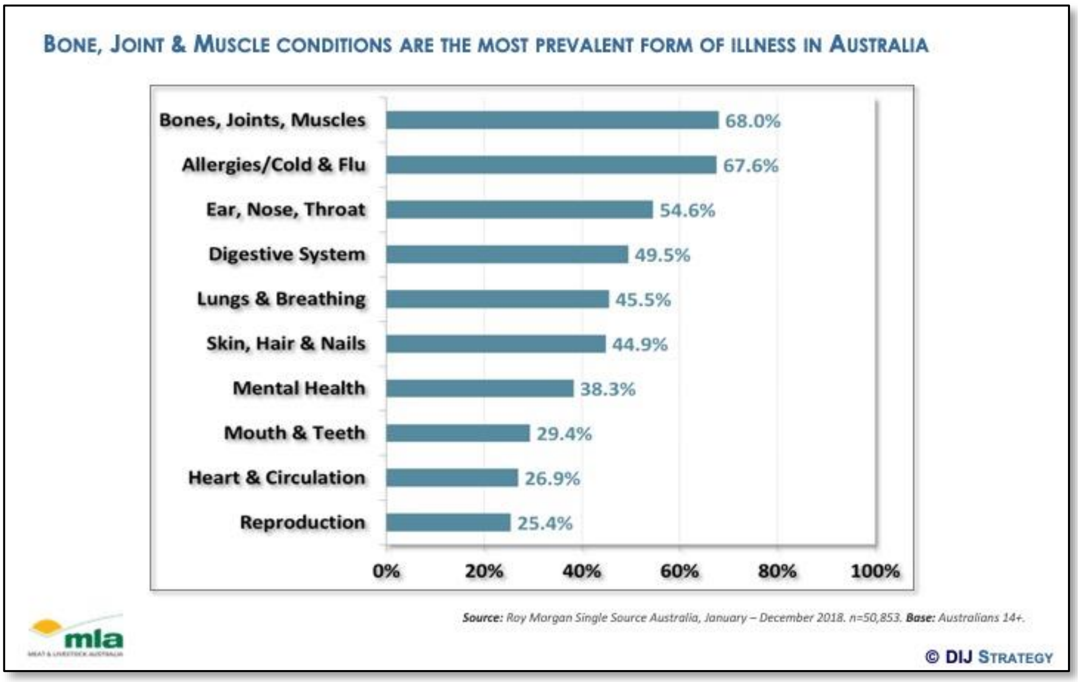
(note: at time of publication of this report, a pending final report from MLA Donor Company project with Freeze Dried Industries P.PSH.0999 will present freeze dried collagen powder)

4.1.3 Key Trends & Reference Point Case Studies

Aches & pains in Bones, Joints and Tendons are the most prevalent illness or condition in adult Australians. One would imagine this figure is even higher for those in their 40's and 50's.

Over 19.3 million Australians aged 14+ (94.4%) suffered from at least one form of illness or medical condition in 2018 according to the latest Roy Morgan health research into the illnesses and medical conditions of Australians based on interviews with over 50,000 Australians during 2018 as part of the Roy Morgan Single Source survey.

The two most common illnesses and medical conditions experienced by Australians in 2018 were:



Medical conditions related to Bones, Joints, Muscles suffered by 68%, or just over 13.9 million Australians

Allergies/Cold & Flu illnesses suffered by over 13.8 million Australians (67.6%).

Other trends that are driving growth and the shifting dynamic of the wellness area, for people in middle ages, include:

Ageing expectations – 60 is the new 40. Expectations that previous generations held about ageing, don't apply to Boomers, who believe they can still do it all

Natural elixirs – consumers are rejecting taking drugs and prescribed medications, in the belief that they can 'change their ways' to address issues (i.e. Cholesterol: Statins vs. Diet)

Positive health – amongst the more innovative consumers, health is no longer just focussed on an absence of sickness, but enhancing wellbeing

Targeted solutions – whilst a balanced diet is the number 1 rule to live by, consumers are seeking solutions which deliver specific & targeted health benefits – i.e. salmon for heart health

4.1.4 Development of a Value Proposition – Concept Statement

All Collagen is Beneficial – Collagen is the fundamental building block to all cells in the body, so is important for all health and wellness. As we age, our ability to produce collagen to replenish cells declines. Collagen can be sourced from a range of different animals – bovine, fish and chicken. Whilst each has differences in their 'collagen type', they are all broadly beneficial.

Closest to our Collagen Profile – Bovine Collagen has a profile closest to our own Collagen make-up. Thus, it is high in type I & III Collagen, which make up over 90% of the Collagen in our bodies. This makes it the **best holistic collagen** source, for overall health and wellness, compared to Marine & Chicken which (arguably) have more focused benefits

Powers up our own Collagen Production – Bovine Collagen is high in the **Proline** amino acid. This amino acid enhances our bodies ability to the produce its own collagen. Thus, rather than seeking to supplement our collagen levels with fish or chicken, bovine is best able to regenerate our own natural collagen levels, to a level experienced at a younger age.

Functioning Cells – Bovine collagen is rich in the amino acid **Glycine**, which is necessary for building healthy DNA and RNA strands. These are the essential genetic building blocks for properly functioning cells throughout the body. Glycine supports strong immune, digestive and nervous systems. It is particularly useful in preventing muscle loss.

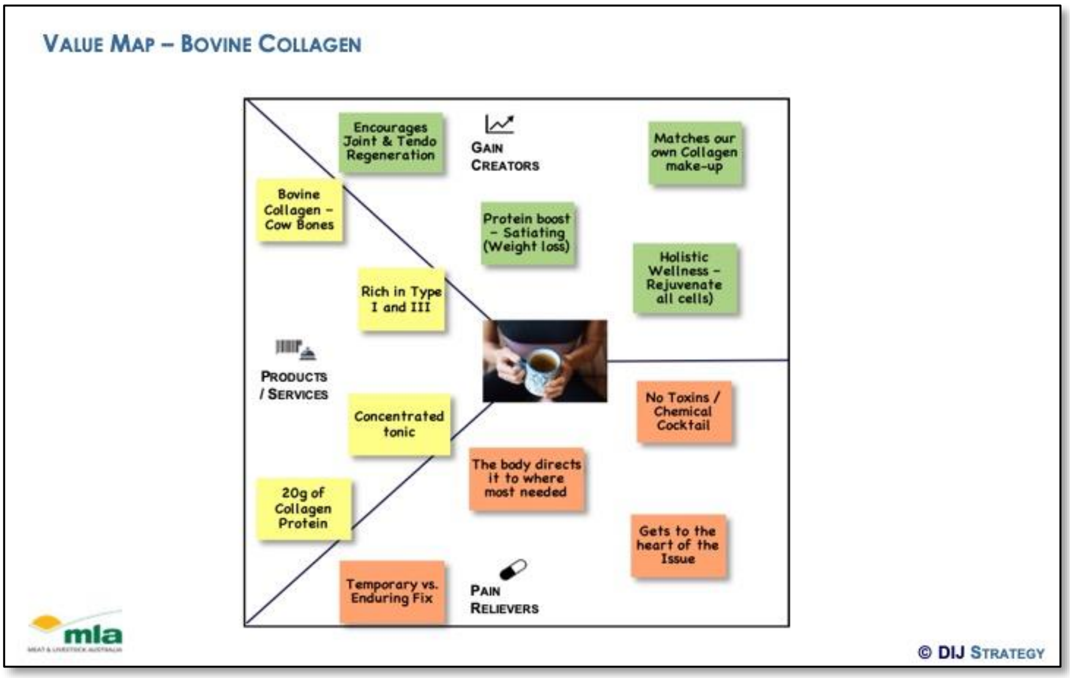
The fundamental properties of a Bovine Collagen, taken as a daily tonic are: It is made from Cow Bones, Joints, Hides, Tendons and other connective tissue. It is rich in Type I & III Collagen. It is a concentrated tonic and also provides the 20g of protein, that is readily available for the body to use.

It is hypothesized that Bovine Collagen offers the following Pain Relievers:

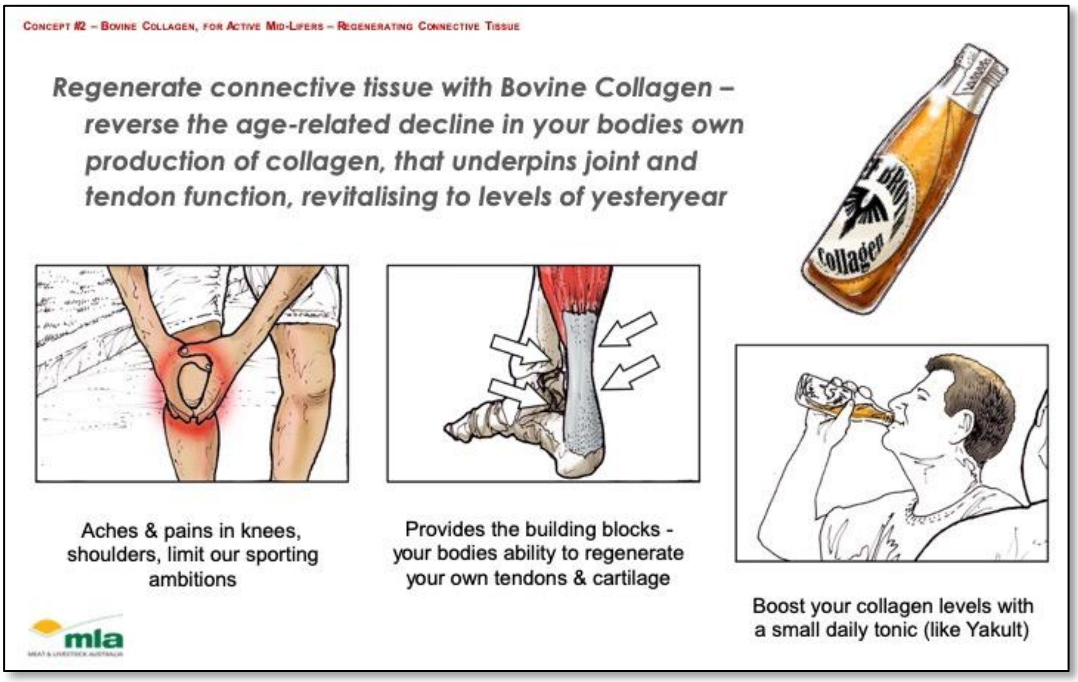
- The Body is able to direct the Collagen to where it is most urgently required, for cell repair
- No toxins or chemicals – it is a completely natural product, simplistically, just a more concentrated form of Beef Stock
- It is able to get to the heart of the issue – addressing areas of injury or stress in the body
- It provides an enduring, rather than just a temporary solution

It is hypothesized that Bovine Collagen is able to deliver the following Gain Creators:

- Holistic Wellness – able to rejuvenate a range of cells that contribute to overall wellness, such as the rebuilding of the gut wall
- Encourages Joint and Tendon regeneration – the core need of our target consumer
- Protein boost – Collagen as a form of protein provides satiating benefits, particularly if the broth is consumed as a mid-morning, or mid-afternoon tonic.
- Matches our own Collagen make-up plays an important role in ensuring it is assimilated



Translating this bundle of attributes, pain relievers and gains into a Value Proposition, with supporting visuals. Portrayed as a daily tonic for the regeneration of joint and tendon function.



4.1.5 Target Customer Persona

Males in their 40's and 50's are notoriously bad when it comes to proactively managing their health, particularly getting themselves checked out when something is amiss. Whilst the situation is not as bad for Health and Wellness, there are some parallels.

Our target consumer is largely oblivious to what is happening inside their bodies as they age – what has changed as they have aged from their 30's to their 50's. Further to this, they don't appreciate why things are changing – what is the ageing process. Their overall attitude is "c'est le vie" – they are experiencing the same ageing experiences as others.

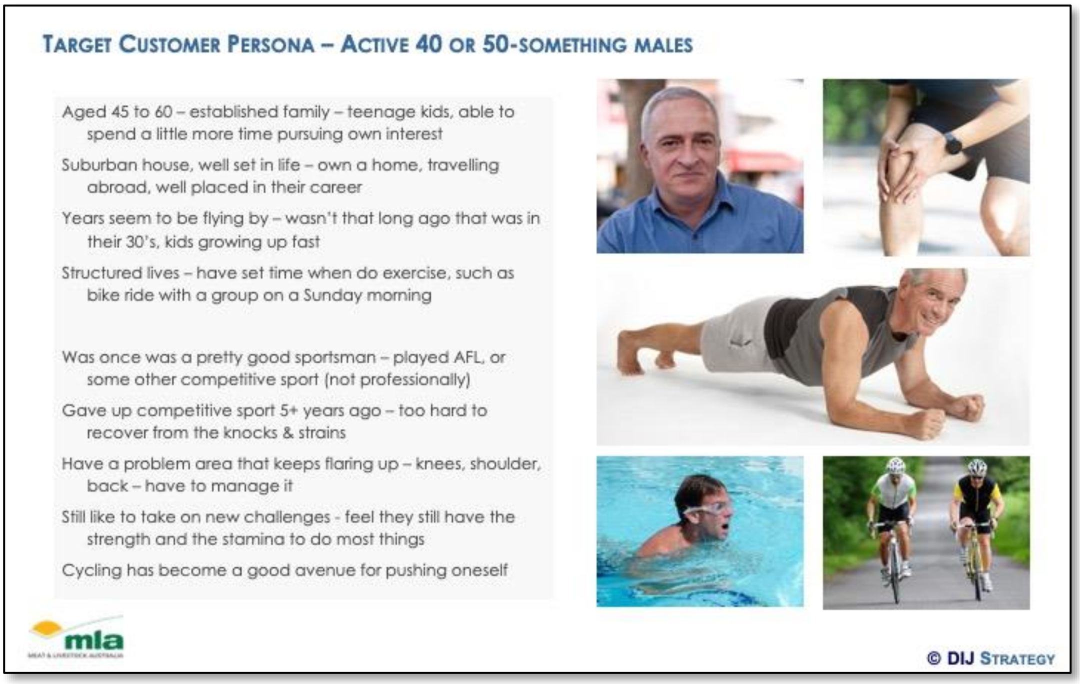
Thus, they have little idea that there is anything they can reasonably do to impact the ageing process, in order to preserve their ability to undertake sporting pursuits and activity generally.

The level they relate to, is 'how they feel'. Change does not happen over-night, but rather over the course of many years and their expectations slowly changes and they adapt to the situation they find themselves in. They particularly note that they find it harder to recover, particularly after undertaking a new activity, even if it just digging in the garden (stiff for a number of days).

These guys believe the most important things they can do, in order to stay active and live a full life are:

1. Continue to exercise, on a regular basis. Many noted that if they stopped, for whatever reason, for a week or so, it was much harder to get back into it and were concerned that they might never get back to the same level.
2. Keeping the weight off was seen as important by a number of the respondents. Not only were they starting to slow down physically, but carrying more weight compounded any aches and pains that they had.
3. Maintaining a balanced diet was believed to be an important part of staying healthy. However, this was predominantly in relation to not eating too much of anything that was bad for you – things in moderation. Many loosely tried to follow a Mediterranean type diet.
4. Sensibly challenge yourself. Whereas in one's younger years, you could push yourself to your limits, one now had to live by the Clint Eastwood motto – "a man's got to know his limitations", otherwise you would regret pushing yourself, particularly if unprepared.
5. Know what works for yourself. As you get older, you need to exercise and approach health and wellness, in a way that works best for yourself, as we are all different.

All participants related that they had had some significant injury (knees, ankles / achilles, shoulders etc.) over the last 5 years that had caused them to undertake some sort of significant recovery program, as well as reassess what types of activities they undertake in future.

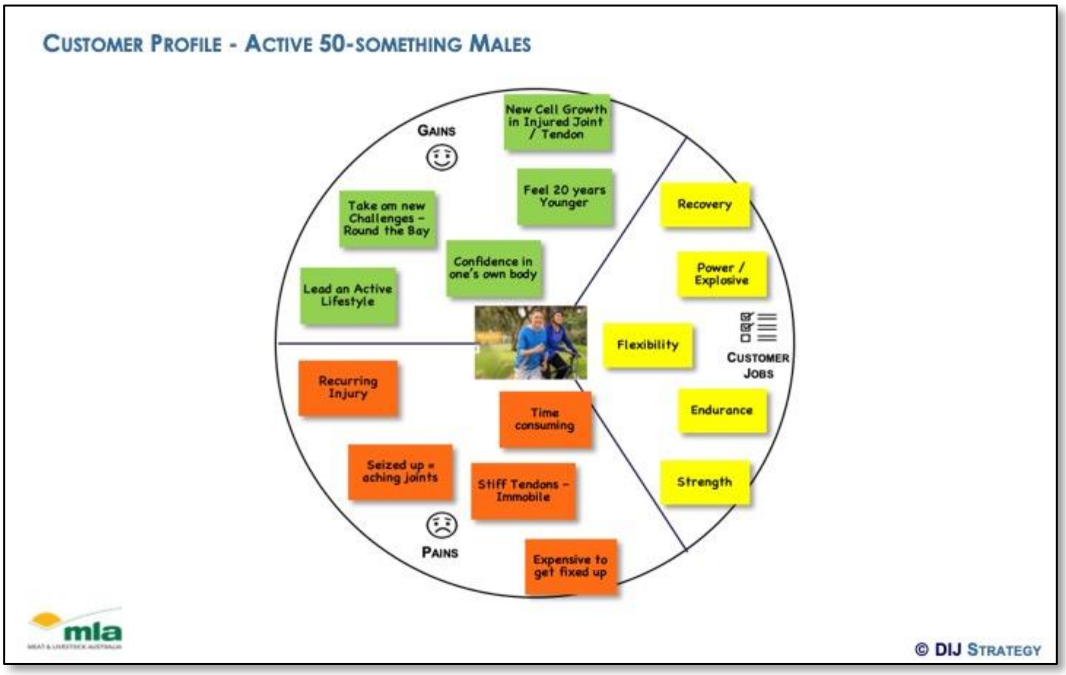


4.1.6 Customer Profile

Males in their 50's are looking for to maintain their wellness and ability to stay active are expressed across the following dimensions of performance (Jobs to be done).

The areas they feel they can still perform at a moderate level are:

- Endurance – so long as they have been training, they feel they have the capacity when it comes to endurance events, such as 'Round the Bay' cycling
- Strength – whilst not quite as strong, they don't believe they have lost a lot, when it comes to strength



Where they do feel they have appreciably dropped off in their performance levels are:

- Flexibility – they are far less able to move and stretch than they were in their younger years. Many feel this is the source of injury, such as when trying to run.
- Recovery – these days they not only feel it the next day, but 2 or 3 days later and often feel worse at this time
- Power / Explosive – this has significantly declined and is the most noticeable thing when trying to play team sports. What one could once do, is just not there anymore. Trying to push oneself in this area is also likely to lead to pulled muscles.

4.1.7 Choice Drivers and Competitive Assessment

There are a number of approaches that our target customer currently adopts to address or manage their afflictions.

Weekly Yoga Class – some have tried yoga, often at the suggestion of their wife. It is thought to be a good way to maintain flexibility for the long term. However, the experience leaves many believing it is not having a tangible effect. Without feeling like one is pushing oneself, it is questionable if there is any benefit.

Formulated Supplements – largely treated with cynicism. Whilst all felt that there were some benefits, for some people, it was by no means seen as being effective for all. The over-riding feeling was they were expensive for the benefits. They were also felt to dramatically over-claim the benefits that they deliver – a great deal of hype & often faddish associations

Weight Training – is seen as a personal choice, rather than recognised for having particular benefits for maintaining muscle mass and joint / tendon strength. Thus, most felt it was really just another form of exercise – similarly grouped under the ideal of it being important to stay active.

Physiotherapy – is seen as what the professionals do. Images on the TV show elite athletes being worked on by the team physios to enable them to play out the match. They also assume that they receive many hours of physio through the week. All have used physios at some point, but only to address a significant injury. It is seen as expensive and time consuming and so not part of an ongoing health regime.

Warming Up Properly – all had learned the benefit of warming up properly. Whereas in their younger years, they got away with it, this was now no longer the case. It is far & away seen as the easiest thing to do, though recognised for only having an impact on preventing new injuries.

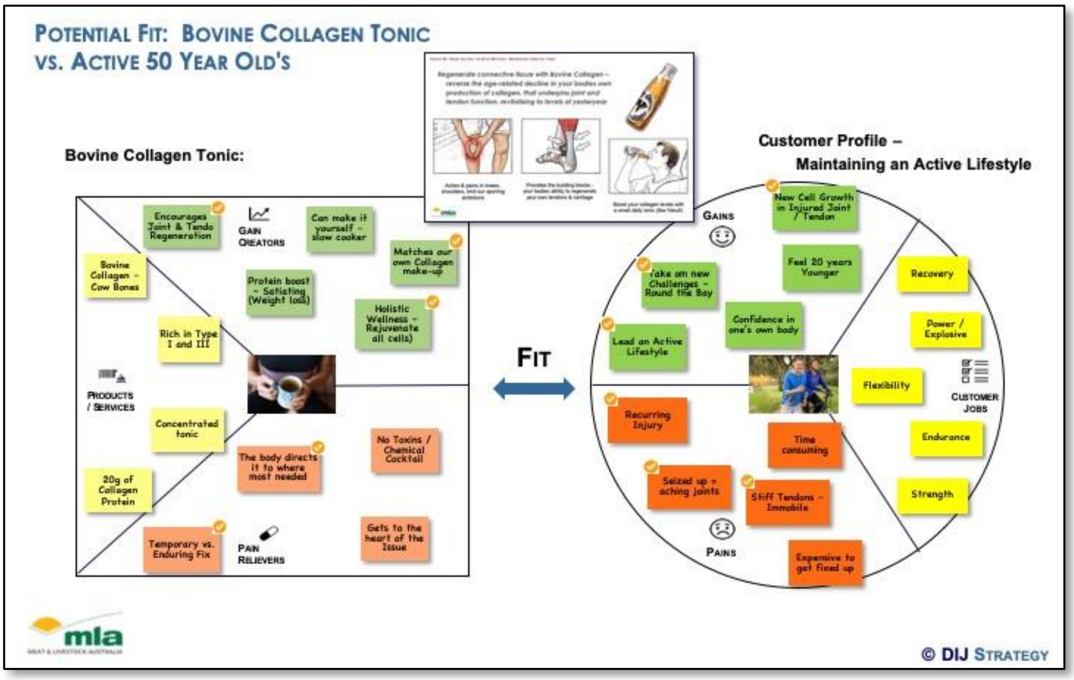
Less Intensive Sporting Pursuits – whilst for many it had not been a conscious decision, all had adopted sporting pursuits that were less intensive on the joints. Exercises like bike riding and swimming allowed our guys to continue to push themselves and gain some sense of competitive satisfaction. Riding in a group and taking on challenges (i.e. Round the Bay) were highly regard in this respect.

4.1.8 Value Proposition Fit

The Bovine based Collagen Tonic is felt to be a good fit to our target customers expectations. The following areas are particularly beneficial:

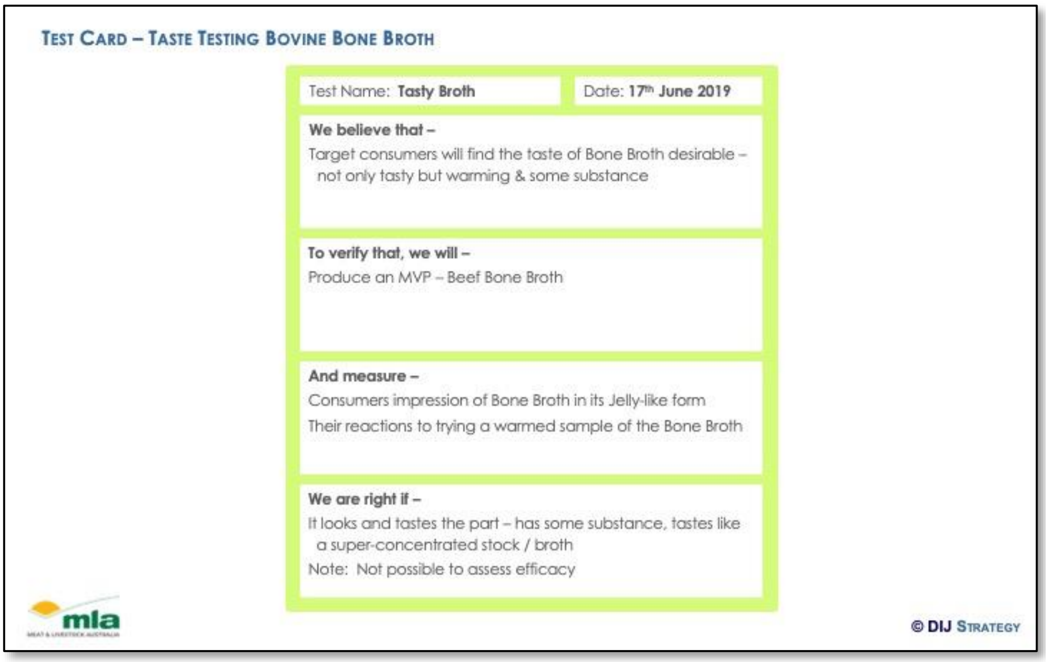
- It provides an enduring / ongoing solution, rather than just a temporary fix, when injury comes on
- They embrace the idea that the body is able to direct the collagen to where it is most useful. Many joked that whilst they would be hoping to fix up a bung knee / shoulder, it would be their luck that they would end up with a thick head of hair again (see group photo later).

- Holistic wellness solution – there is no downside to taking a natural product like this, with a broad spectrum of benefits beyond regenerating joints and tendons.
- Encourages Joint & Tendon Regeneration – the core benefit area they are seeking



4.1.9 MVP Test – Delivering on the Value Proposition

We decided that it would be worthwhile giving respondents a sample of bone broth to try. Bone Broth was made from 3Kg of Organic beef bones, cooked in a slow cooker for 28 hours. A popular bone broth recipe was used.



On inspecting the Bone Broth in its chilled form, it conveyed the right cues – natural, concentrated and 'jelly like'

All respondents were eager to try the Bone Broth

It was felt to have a desirable consistency and aroma – natural

It was felt to have a good taste – like a concentrated broth, a beef version of chicken soup

The product experience supported the claims – it felt like it had substance and body

4.2 Opportunity #2. Chips (Crisps) with Real Meat Flavour

4.2.1 Opportunity Space

Chips are a dominant category in our lives. A visit to any supermarket, reveals just how prominent they are, with an entire isle typically dedicated to a range of salty and savoury snacks. IBIS world states that the Australian Savoury Snack Food market turns over some $2Billion per year. Though the market is stagnant, in terms of growth (volume in slight decline vs. slight value growth) there are significant dynamics going on within the category. IBIS Word identifies a desire for more premium / gourmet versions and healthier snacks as the key driver of this change.

Whilst premium chips give the impression of containing cosmopolitan ingredients, the reality is very different, with the flavour largely delivered by MSG type compounds. In other categories, real ingredients have been a strong platform for a further step up from premium – i.e. ice cream

Whilst chips are predominantly bought and consumed for self, the sharing and entertaining occasion is also significant. It is on this occasion that regular chips aren't always seen to be appropriate / impress.

Consumers are becoming more conscientious about what goes in to the products they are consuming – turning the packet over, hoping to see a short list of recognisable ingredients

Previous research into the idea of Meat Crisps was well received, but for most, the reality was too intense a flavour – thus using the meat as just a flavouring, has the potential to overcome this.

4.2.2 Leveraging Previous Learning's

P.PSH.0812 – Red Meat Protein Snack

The aim of this project was to use leading edge science in meat protein isolate extraction to use red meat derivates as an ingredient in snack (or other) food products that are aligned to insights trends for improved convenience, health (from "naturally healthy" ingredients) and indulgent tastes, thereby delivering new high value offerings for the Australian Red meat industry.

Identification of a diversity of concepts

Whilst the concepts themselves, were somewhat 'out there', the thinking produced from a number of leading food tech firms, highlights the diversity of the opportunities. The attributes of red meat make it suitable for the development of many different potential solutions.

V.RMH.0073 – Investigation of Novel Drying Technologies for the Australian Red Meat Industry

Desktop research to identify and evaluate alternative drying technologies and their potential application to red meat. Identifying where some are likely not feasible – producing a remaining short list.

Raised the idea of a real meat flavour product – allowing companies using this as an ingredient to be able to claim 'real meat flavour'

Real Meat Flavouring will need to justify a significant price premium

Whilst characterised each of the drying technologies, it did not relate these processes to implications for attributes and thus pain-relieving opportunities.

It is widely recognised that Jerky has limited appeal, with only a small percentage of consumers finding it desirable. However, the idea of meat-based snacks is highly desirable, with a range of potential offerings, though these have not been validated with consumers, nor proven that they can in any way deliver on their attribute claims (great in theory!).

4.2.3 Key Trends and Reference Point Case Studies

Despite the savoury snack's category being static in terms of volume and value growth, this hides a highly dynamic market. Browsing the supermarket isle, the sector experiences a lot of significant price promotion, particularly at the value end of the market. There are a number of trends driving this change, as illustrated by the Red Rock Deli Special Reserve and Ultra-Premium Ice Cream (Haagen Dazs) case studies (see Appendix)

Authentic & Premium – consumers desire for the 'real thing' is the primary driver of delivering a premium experience

Casual Sophistication – consumers seek to impress their social circle with their cosmopolitan tastes and sophistication, on more relaxed occasions

Simplicity & Clean Label – consumers seek simple and natural ingredient lists. Conversely, they are wary of long ingredient lists, particularly with lists of ‘E numbers’ and ‘MSG’ type references

Sophisticated tastes – long ago our understanding of wine was white vs. red. We now have an appetite for varietals and wine regions to satisfy our discerning choices

Functional Snacking – snacks are no longer small, inconsequential treats, but play an important role in delivering functional benefits (i.e. sustained energy)

4.2.4 Development of a Value Proposition – Concept Statement

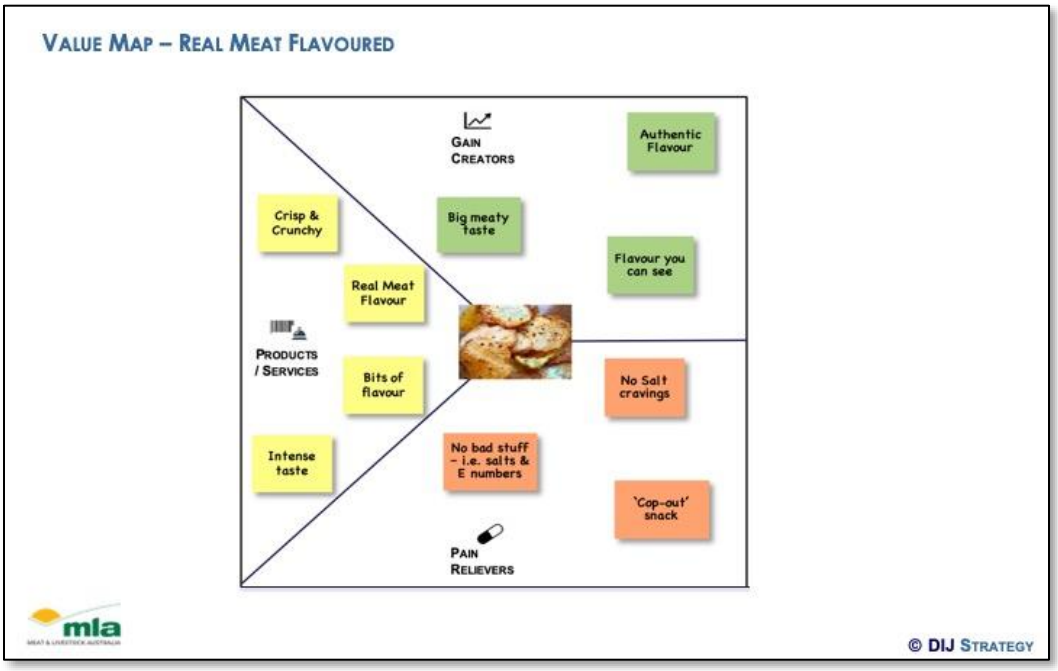
There are multiple benefits in using real meat as a flavouring for savoury snacks:

The Real Thing – Consumers see an authentic offering as a premium proposition, compared to artificial alternatives

Superior taste delivery – Consumers are seeking savoury tastes - their preferred flavour profile. Real red meat delivers the ultimate umami flavour and taste experience

Intense flavour – The greatest criticism of pure red meat-based snack offerings, is that the flavour is too intense for most people’s taste. However, as flavouring added to a base with textural qualities (crispy & crunchy potato chips), could still pack a serious flavour punch

All good – whereas the ingredient panel on packets of chips is long and highly questionable, real meat flavouring is all natural and free from artificial additives



The fundamental attributes of Chips are that they must by Crisp & Crunchy and have an Intense Flavour. The additional properties delivered by having real meat as a flavouring are Real Meat Flavour and Bits of Flavour you can see.

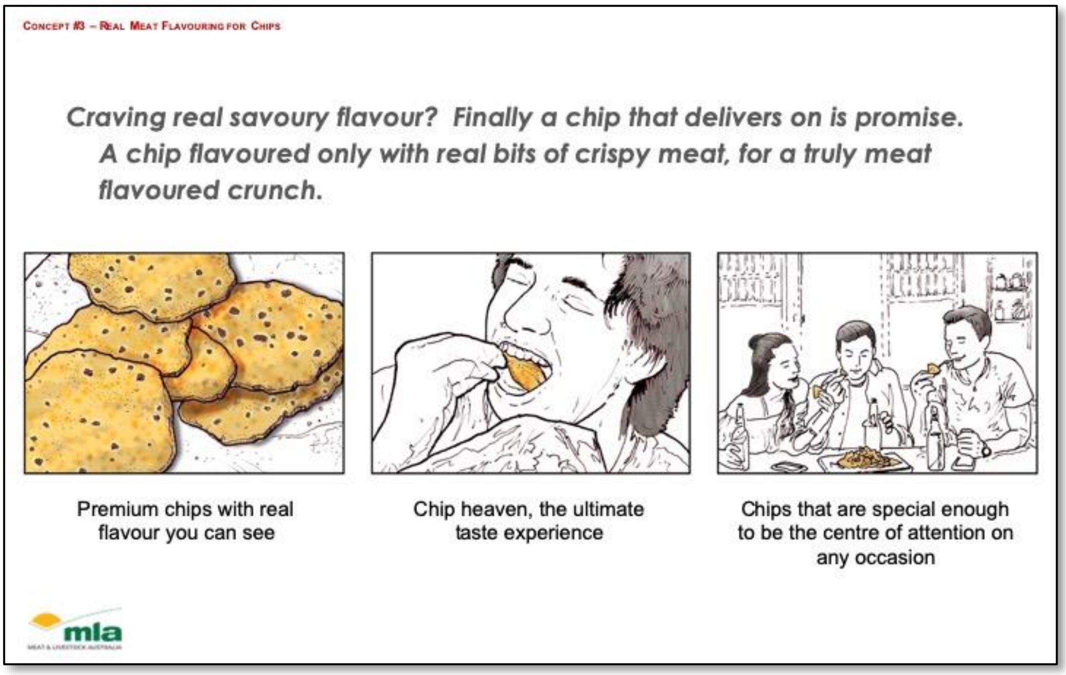
These attributes have the potential to overcome the following, hypothesised pain points:

- Less reliant on an intense salt experience to address savoury cravings
- No longer seen as a 'cop-out snack' – existing chips are often perceived as not having put any thought into what one is serving one's guests
- No bad stuff – a long ingredients panel with a largely undecipherable list of ingredients

This bunch of attributes also potentially delivers (hypothesized) the following Gain Creators:

- Big Meaty Taste – consumers love the taste of meat and for most, the more the better, up to a point
- Authentic Flavour – there is nothing quite like the real thing, particularly for premium experience
- Flavour you can see – having the visual cues of real flavour

This bundle of Pain Relievers and Gain Creators underpins the following Concept:



4.2.5 Target Customer Persona

Our target customer is most notably defined by being a daily snacker of savoury snacks. They would claim to love savoury snacks, possessing a 'savoury tooth'. However, this does not preclude from also possessing a 'sweet tooth'.

Most typically, they are white / grey collar and of a generation where they don't structure their overall food intake around regular, set meals, but are happy to make it up as they go along. This is most obviously typified by having flexible behaviour to what they eat and when they eat it.

Chips fulfil a variety of occasions, from the ‘mid-afternoon munchies’ when savoury cravings dominate their lives. Typically, they would impulse purchase for this occasion, on an as-needs basis. However, some of the female respondents pre-planned for this occasion, taking small packs of chips (from a multi-pack bag) with them, for the day – a strategy for portion control.

Our target customer also enjoys chips in the evening, often something they share with their partner. Chips are also seen as being a good choice for casual get-togethers with friends. Whilst not see as particularly special, they are easy and popular amongst most people.

4.2.6 Customer Profile

Target Consumers have a number of ‘Jobs to be done’ when it comes to Savoury Snacks:

- Satisfy savoury cravings – the core role of chips
- Crisp & crunchy eating experience – besides the flavour hit, what makes them so enjoyable to eat
- Compliment a drink
- Good for sharing – appropriate quantity and good to pass around

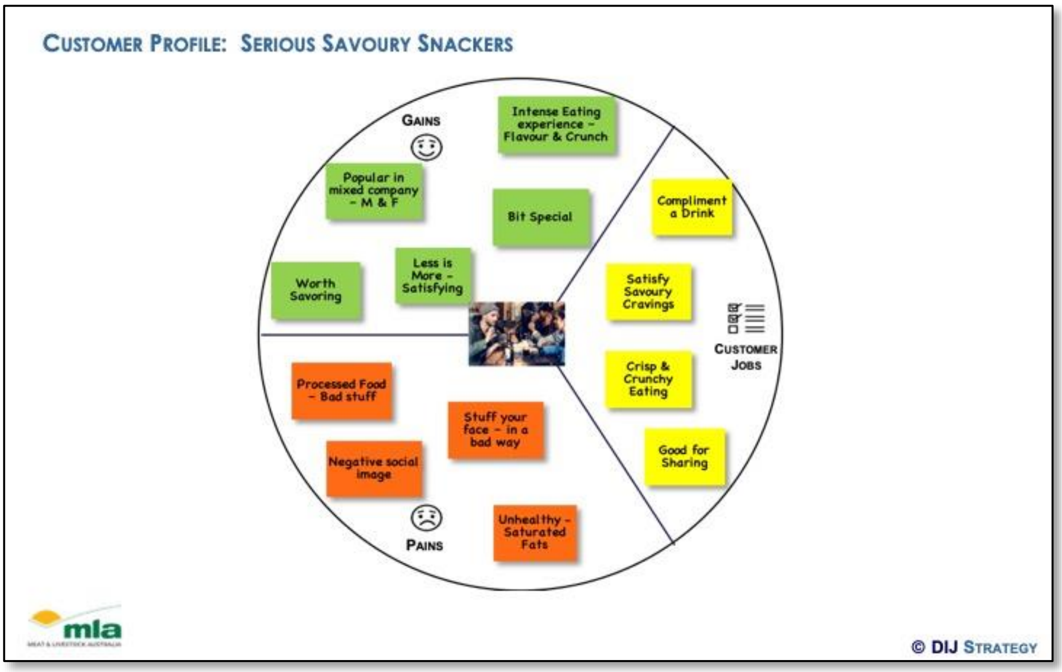
The Pains that they currently associate with savoury snacks are around their perceived lack of health credentials:

- Stuffing your face – for most people, on most occasions they find chips to be addictive and regret eating the whole pack
- Unhealthy, saturated fats and high carb content – not only is there no useful nutrition derived from chips, but too much is definitely a bad thing / need to work it off
- Processed food – this is particularly a criticism of the extruded snacks (i.e. Twisties), consumers have some mild concern about what is in savoury snacks

- Negative Social image – consumes feel that on some occasions they are inappropriate as a sharing snack

The Gains that target consumers are seeking from savoury snacks are:

- A Bit more Special – appropriate to more occasions
- An intense eating experience – full on flavour, as well as a crisp and crunch eating experience
- Worth savouring – whilst just stuffing your face, is on occasions, highly enjoyable, being able to enjoy them more sedately would be desirable
- Popular in mixed company – Chips are a greater leveler, something everyone can enjoy



4.2.7 Choice Drivers and Competitive Assessment

For some, the wide plethora of choice is all too much, and they just revert to what they know and like best (i.e. Salt & Vinegar). For others, the continuous array of new flavours and the emergence of variations of different types of chips, makes for an interesting category. The chips category is where people like to browse the wide choice. But the main purchase driver is brand recognition and what flavour one feels like.

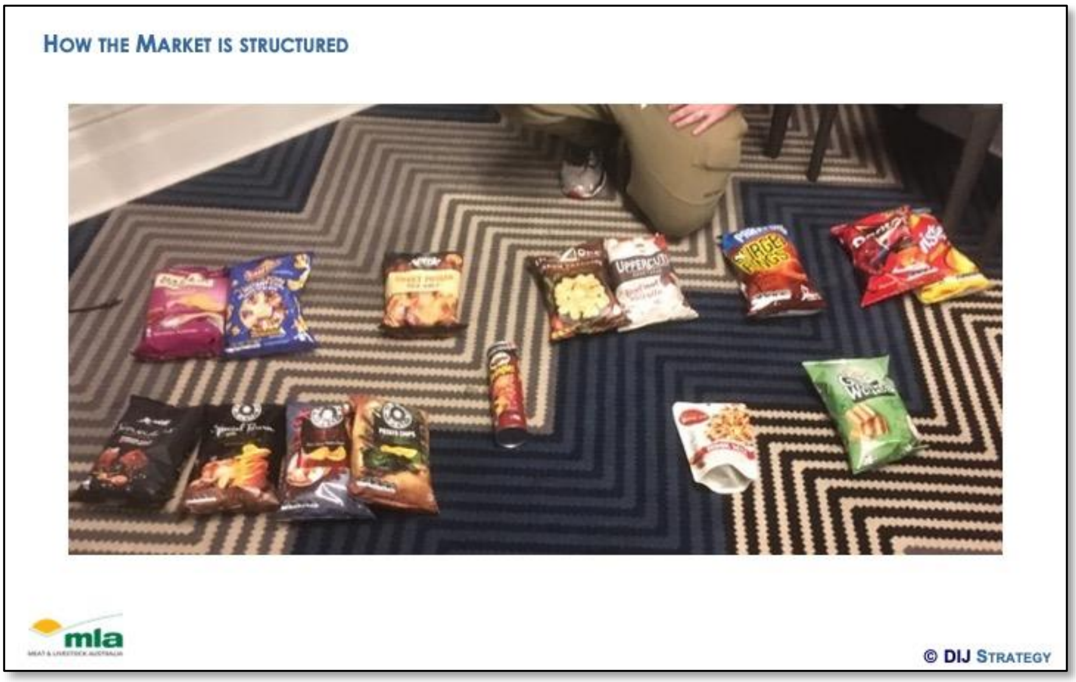
Consumers expectation of what would make a better chip was largely met with a blank stare. Respondents felt that they were just about perfect as they were and ticked all the boxes. The only suggestion was that it would be great if they were most suitably designed to deliver on particular occasions (i.e. Sweet Chili flavour for drinking with beer).

Mapping the products that you typically find in the chip isle at the supermarket, resulted in a fairly granular level of distinction. The extruded and more processed snacks were seen as being very different. These were divided into those which gave fond memories of childhood (Twisties, Burger

Rings), which are still just as relevant today. The other products were seen as being healthier and with some interesting flavours. However, enhanced healthiness was only by degrees, so for most, was insignificant.

The chips were divided into the alternative types (like Sweet potato), the everyday, family chips (like Smiths) and the Premium Chips (like Red Rock). It was this latter group that was the most preferred.

Products like Bhuja stood out on their own and were also well liked, offering a unique flavour and contrasting textural experience.

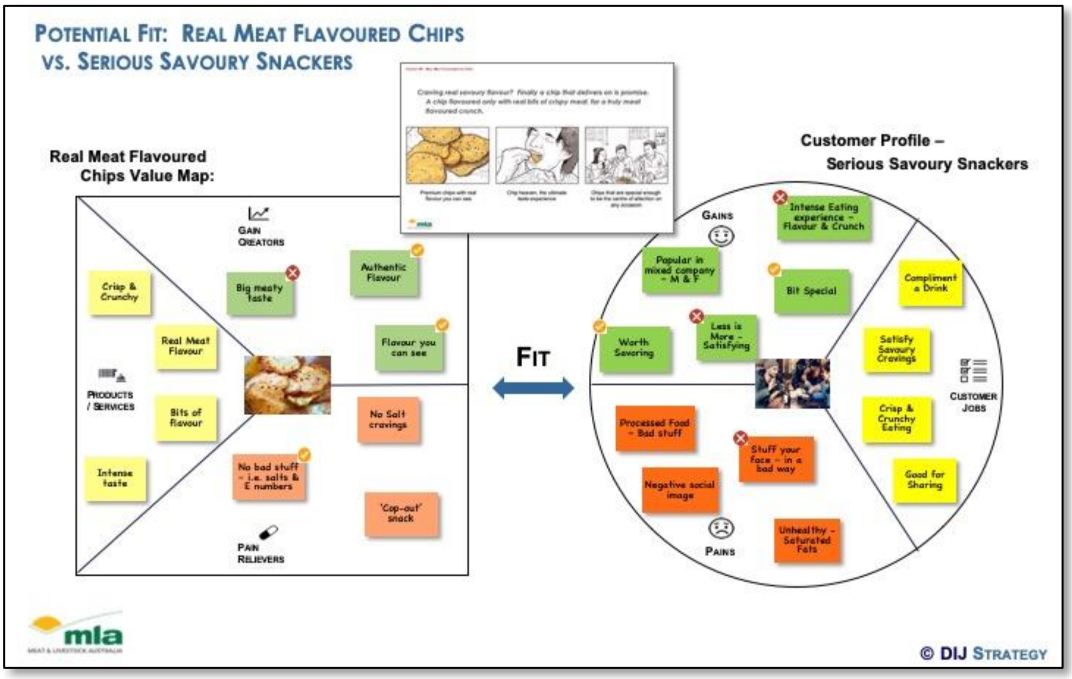


4.2.8 Value Proposition Fit

The initial reaction to the concept visual was positive – something new and different in the savoury snack market. Many respondents stated they would be interested to try them.

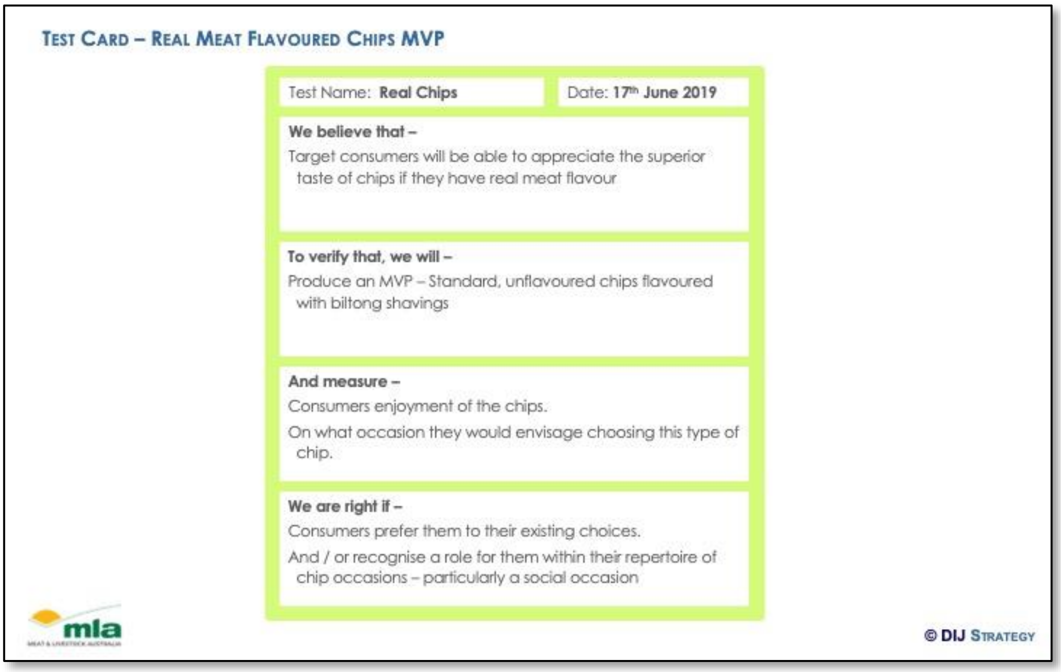
The idea of real flavour was positively received. Whilst consumers don't expect real flavour on their chips, it was seen as being different and more premium. Where consumers were having trouble, was with the idea of 'real meat'. Chips are inherently a processed product and having real bits of meat did not fit well with this. Many expressed the view that it would be a more comfortable fit with real chili or rosemary, but they were not sure about meat. Explaining that it was dried meat, like Jerky did little to reassure people. All the respondents lacked experienced with Jerky / Biltong and did not have a positive view of it.

Target consumers felt it would be a bit more special / premium and potentially have a flavour that though more subtle, was a little more sophisticated. However, this compromised the core enjoyment of chips – being able to 'stuff your face', based upon an intense flavour and textural eating experience.



4.2.9 MVP Test – Delivering the Value Proposition

A prototype version of Real Meat Flavoured Chips had been prepared, using Biltong shavings to flavour some raw (unflavoured) Chips. Prepared in a 'home kitchen' without the aid of accurate setting of oil temperatures at the desired level, the end result was a long way from what a commercial solution would hopefully deliver. But the essential qualities of the prototype were able to be delivered – real bits of meat flavouring on chips. Unfortunately, the real meat flavouring didn't adhere to the chips, so required some level of latitude by respondents trialling the chips.



As part of the overall market research phase, and after discussing the concept, target customer respondents were able to try them for themselves, with the following results:

- All respondents were excited to try the chips.
- The real flavour claim was embraced – could see the real bits of meat.
- The chips were not well liked – the savoury flavour was far too subtle and lacked the saltiness that they crave.
- All experimented with adding their own salt, via a salt shaker. The resultant experience was very much preferred.
- The MVP had a number of limitations – the Biltong Shavings had not stuck to the chips, resulting in poor flavour delivery
- Whilst it had pushed beyond the boundary of still being a chip, it was seen as having the potential for being a more special chip, but in a non-chip kind of way

4.3 Opportunity #3. The Renaissance of Tallow Fries

4.3.1 Opportunity Space

Chips cooked in tallow, rather than vegetable oils are said to deliver a significantly superior outcome – crisp and crunchy fries, with a subtle but delicious beef flavour.

However, Tallow was phased out 30 years ago, due to concerns about saturated fat – a generation have never experienced it.

Our more sophisticated understanding of fats and its role in our health and wellbeing has re-classified saturated fats.

Other animal fat-based offerings have made a resurgence – demand and price for butter has sky-rocketed.

Almost no one eats fried foods believing they're being healthy – they are motivated by taste-based enjoyment. However, they do seek to minimise how unhealthy they're being.

4.3.2 Leveraging Previous Learning's

A.COP.0067 – Tallow Enhancement Process Investigation

Like most other animal fats, beef tallow is a highly saturated fat with approximately 70% of its component fatty acids being saturated. Tallow also contains significant amounts of free cholesterol. Due to concerns about adverse health effects of saturated fat & cholesterol on cardiovascular health, tallow has rapidly lost its place in the food service industry, and to a large extent, has been replaced by healthier vegetable oils.

An extensive literature and patent review was conducted to investigate value-adding opportunities for beef and sheep tallow by identifying feasible processes for converting tallow to healthier oil and for extracting significant flavour compounds from crude or fractions of tallow. The feasibility of fractionation technologies and transesterification processes are discussed, as well as potential food applications for highly monounsaturated tallow-based products. The potential for producing and imparting desirable tallow flavour to foods cooked in tallow-based products is also discussed.

Challenge the Fundamental Premise

It was well recognised that deep frying with beef tallow produced a superior eating result. However, such was the concern around the unhealthy saturated fats within, that this was too much of a negative to continue with its usage.

A widely accepted commercial solution that was able to convert tallow into healthier oils was never realised. However, the fundamental premise that saturated fats are 'the worse type of fats' has since been challenged. Our understanding is that there are now 'good fats', 'bad fats' and 'OK fats', though this is within the context of moderation. Animal based saturated fats are now recognised to be 'OK fats'.

Anything deep fried is recognised to not be doing you good but is eaten for enjoyment. Thus, whilst animal fats are still thought to be best avoided, the basis for this argument no longer holds true.

4.3.3 Key Trends and Reference Point Case Studies

Categorising tallow within an oil's context does not provide a great deal of richness in terms of market trends driving new dynamics. The oils market is characterised by a desire for healthier oils with positive nutritional properties – such as Avocado or walnut oil. There is greater value in looking more broadly at some of the broader trends going on in consumers overall food choice dynamics.

Re-discovered authentic foods – consumers seek foods that are less processed and 'close to natural' - i.e. butter vs. margarine, liquid stock vs. stock cubes

Off-setting behaviour – many consumers are trying to be 'good to themselves'. But having the occasional break, when they chose not to maximise enjoyment – i.e. Flexitarian vs. Friday burger

Sophisticated health realisations – what was once considered bad for us, is now contradicted by new medical science – i.e. Eggs & cholesterol, Avocado's & Good fats

Simple Premiumisation – many consumers would rather have a smaller quantity of better - i.e. the growth of premium & craft vs. decline in low alcohol beers

4.3.4 Development of a Value Proposition and Concept Statement

There a multitude of benefits in using Beef Tallow for deep frying:

Flavour - Beef tallow has a delicious taste, and it adds a lot of flavour to food. In short; frying or roasting with tallow upgrades the taste and adds something extra to food. Since tallow is pure beef fat, anyone who likes the flavour of food like ribeye and other fatty cuts of steak should enjoy using it for cooking.

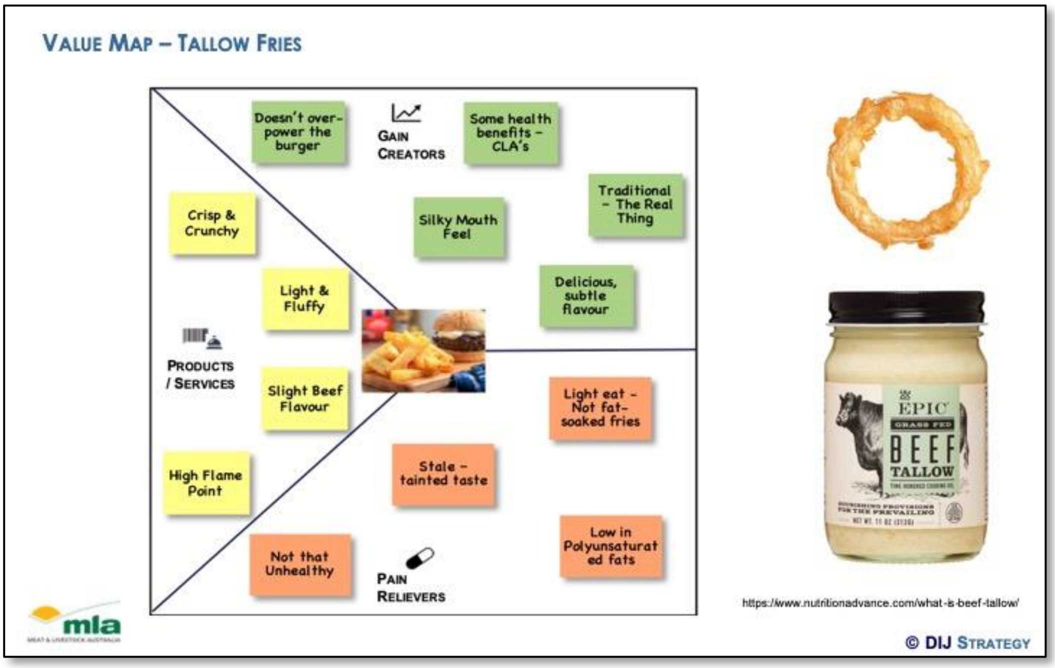
Heat Stable and Fairly Resistant to Oxidation - On the positive side, beef tallow is one of the most heat-stable cooking fats available, and numerous studies back this up. Tallow also has a high smoke point of 250°C (405°F).

Beef Tallow Is a Sustainable Cooking Fat - Notably, this cooking fat is a by-product of cattle farming and the meat industry, and it requires no extra resources. In contrast, vegetable oils like palm oil have a significant carbon footprint, and the production of this oil has resulted in widespread deforestation (Carlson et al, 2018 7, and Dunning, 2018 8).

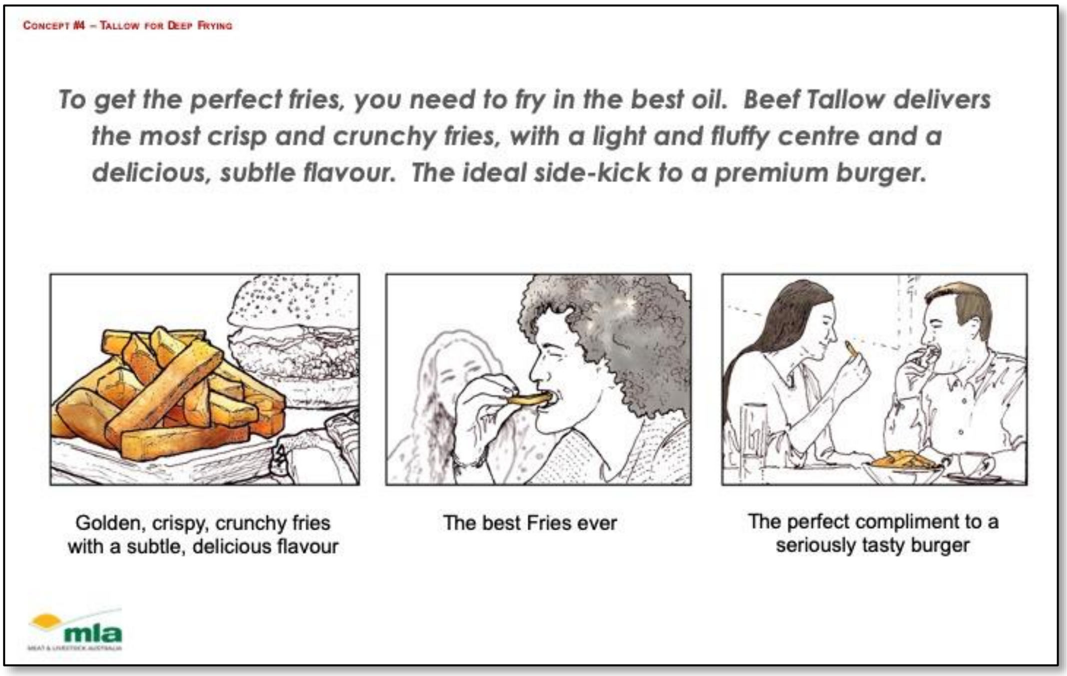
Rich Source of Conjugated Linoleic Acid (CLA) - Beef tallow is a significant source of conjugated linoleic acid (CLA). CLA is a kind of naturally-occurring trans-fat, and research suggests it may have some beneficial impacts on human health. It is important to note that there is a difference between CLA and artificial trans fats, which are associated with numerous health problems (Lehnen, 2015 10, Iqbal, 2014, 11).

⇒ **The best option for Deep Frying**

Given the high heat it requires, deep frying is never going to be the healthiest way to cook. However, if you do it, it is essential to choose a suitable deep-frying fat. Tallow has a reasonably high degree of oxidative stability, and this makes it one of the best available options.



It was deemed that whilst fries might seem an incredibly simple offering, in reality, they are consumed across a wide variety of occasions and serve somewhat different purposes. Fries eaten whilst watching the footy (i.e. covered in sauce) require very different properties to accompanying a great steak. We decided that accompanying a burger should be our focus for this initial exploration – if it didn't work in this context, it would be unlikely to be a good fit elsewhere.

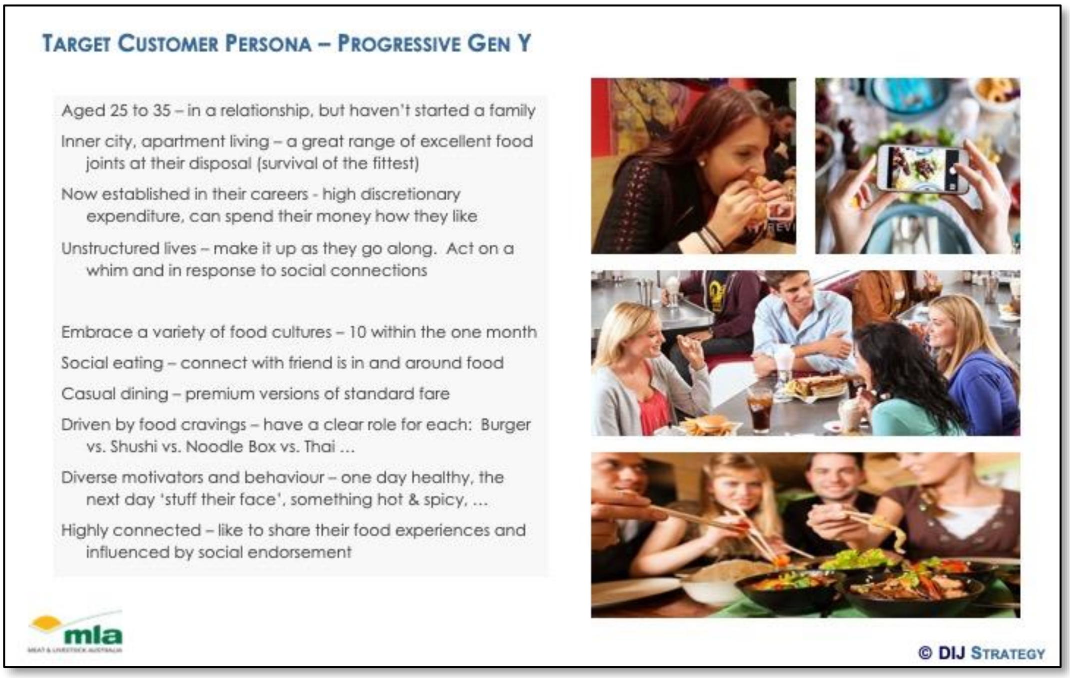


4.3.5 Target Customer Persona

Consumers who are the most frequent and discerning when it comes to premium burger joints, are Gen Y aged 25 to 35. They have high levels of discretionary expenditure and lead a life style that allows them to eat out as and when they feel like it – which is often.

They have cosmopolitan tastes, enjoying a diverse array of food cultures. Uncovering the basis of this choice, is hard to fathom, particularly as it is often shaped by the social context – what someone else decides.

Premium burger joints are one of the primary choices within their repertoire.



4.3.6 Customer Profile

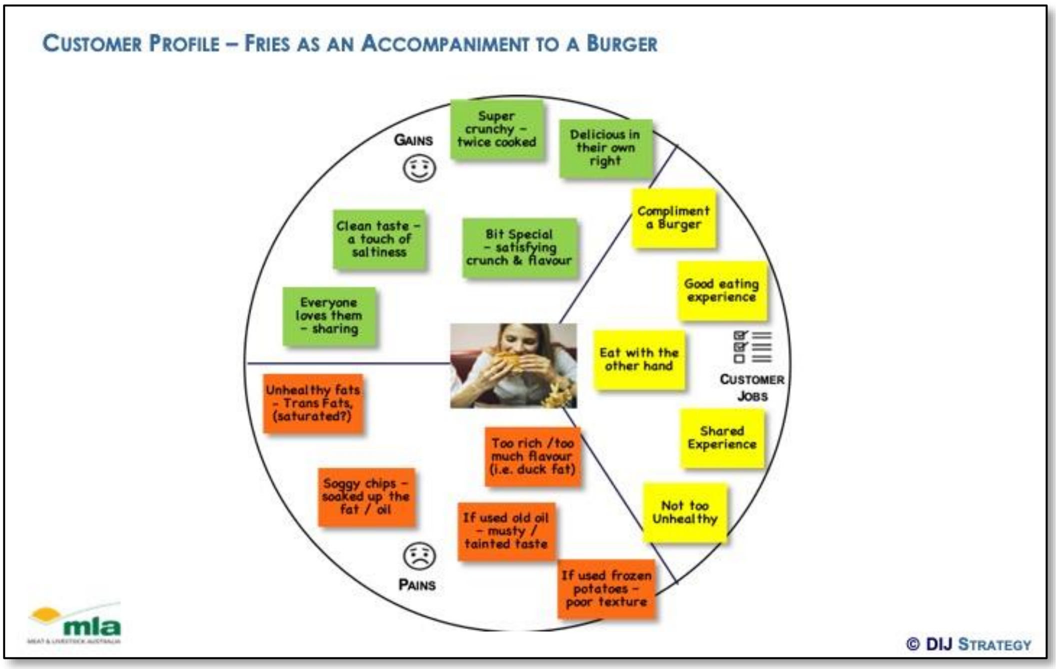
Target consumers have great expectations as to how fries should perform, when they are a part of the overall burger experience. They need to compliment the burger, in terms of taste and texture, provide a good eating experience, be able to be eaten with the other hand. Often the fries provide the shared experience, that is so important for a group occasion – a large order of fires goes in the middle. Whilst no one is expecting the fries to be healthy, some would prefer them to not be overly unhealthy.

Existing associated Pain Points includes:

- If the flavour is too rich / dominant, as some had experienced having duck or coconut oil fries
- If the burger joint has cooked them from frozen, as pre-cut chips – they can just tell
- Similarly, if the oil is well past its best, they can also tell from the flavour
- Poorly cooked chips often end up as soggy or under-cooked, still hard in the middle
- Knowing it is an unhealthy fat is concerning

Conversely, our target consumers are hoping that their fries will deliver on (associated gains):

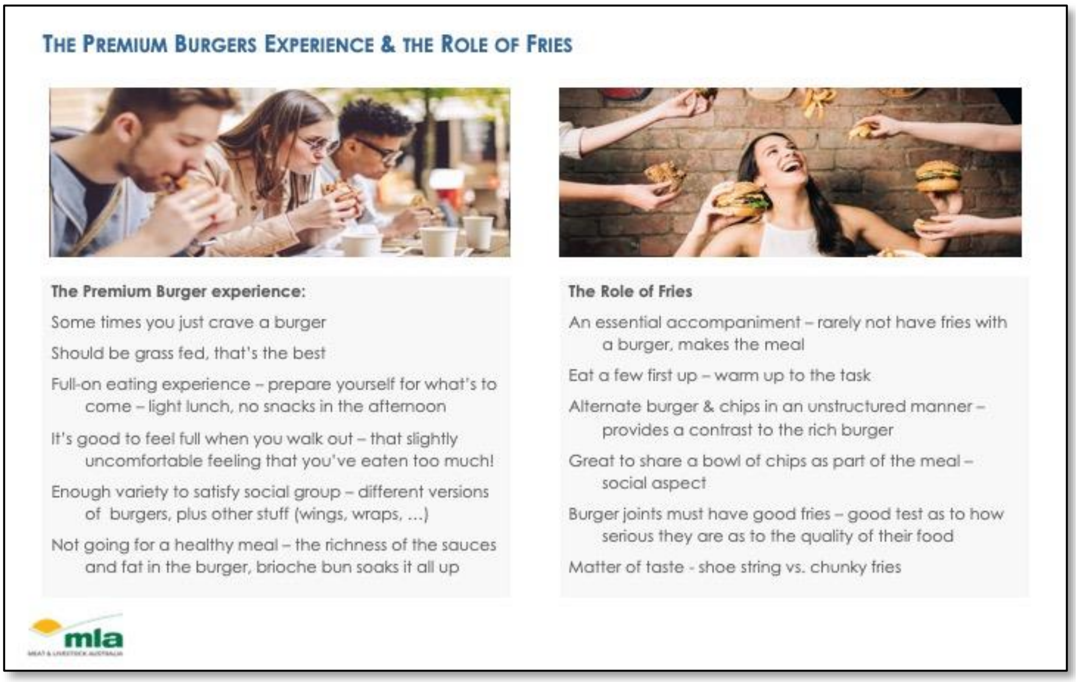
- Delicious in their own right – not merely a back-drop to the burger
- Super crunchy – most expressed as needing to be twice cooked
- Clean taste – a touch of salt to help cut through the fat of the burger
- As a shared offering, everyone needs to be happy with them



4.3.7 Choice Drivers and Competitive Assessment

The rituals associated with going to a premium burger joint is well established. Starting from the occasion on which one feels like a burger – sometimes a Friday lunch time, other times an evening occasion. It also includes preparing oneself, for many, making sure you are appropriately hungry, to do having a burger justice.

The role of the fries is complex and involved. It is an essential part of the burger experience, with different people having different rituals, as to how they eat their fries along with their burger.



4.3.8 Value Proposition Fit

Target consumers fully embraced the Value Proposition, though there was an element of 'what's not to like'. Rather than addressing any existing issues with the fries they are currently getting; it was promising a more perfect chip.

Interestingly, no one had a clear idea as to what Beef Tallow was, assuming it to be a brand of Beef Fat – they had never heard of the name before.

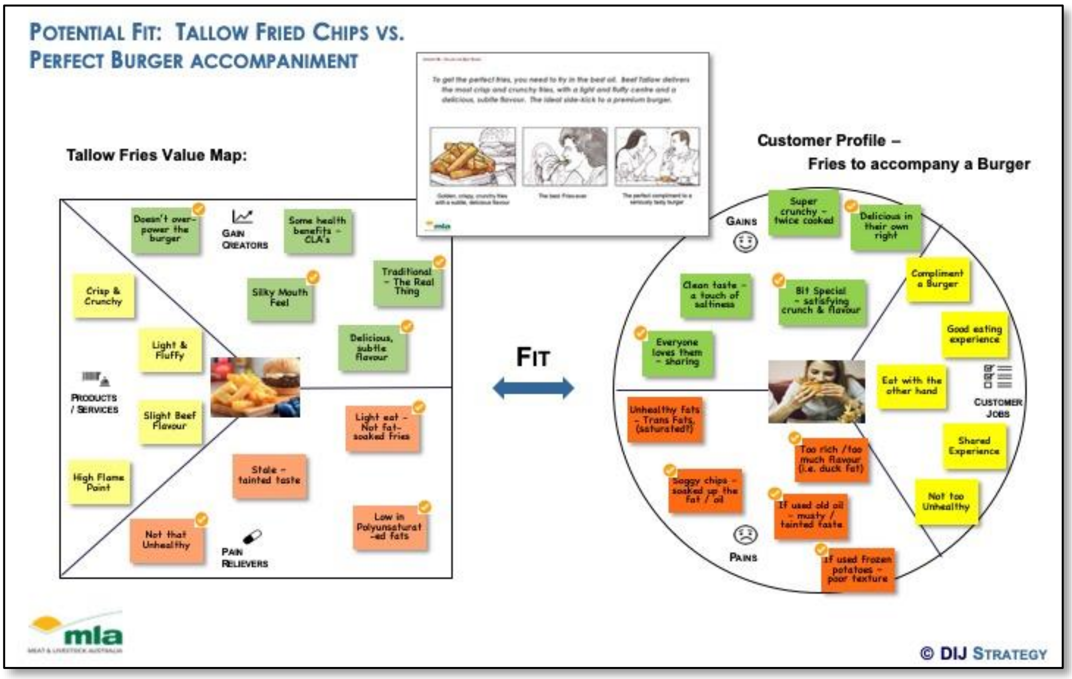
Their desire to have a great chip, when having a burger was also strong. If you couldn't get great fries at a burger joint, then where could you.

There was some concern that as an animal based 'oil', it would have high levels of saturated fats, and this was not a good thing. However, they talked themselves into believing that saturated fats were OK and trans and polyunsaturated fats were the ones to avoid.

However, the over-riding consideration was that one does not go to a burger joint, when you are trying to be healthy – there is Japanese and a host of other food cultures that satisfy this need. Thus, the key consideration, was as to whether it did deliver an appreciably better chip for this context.

Across a number of dimensions, the promise of Tallow Fries was highly appealing:

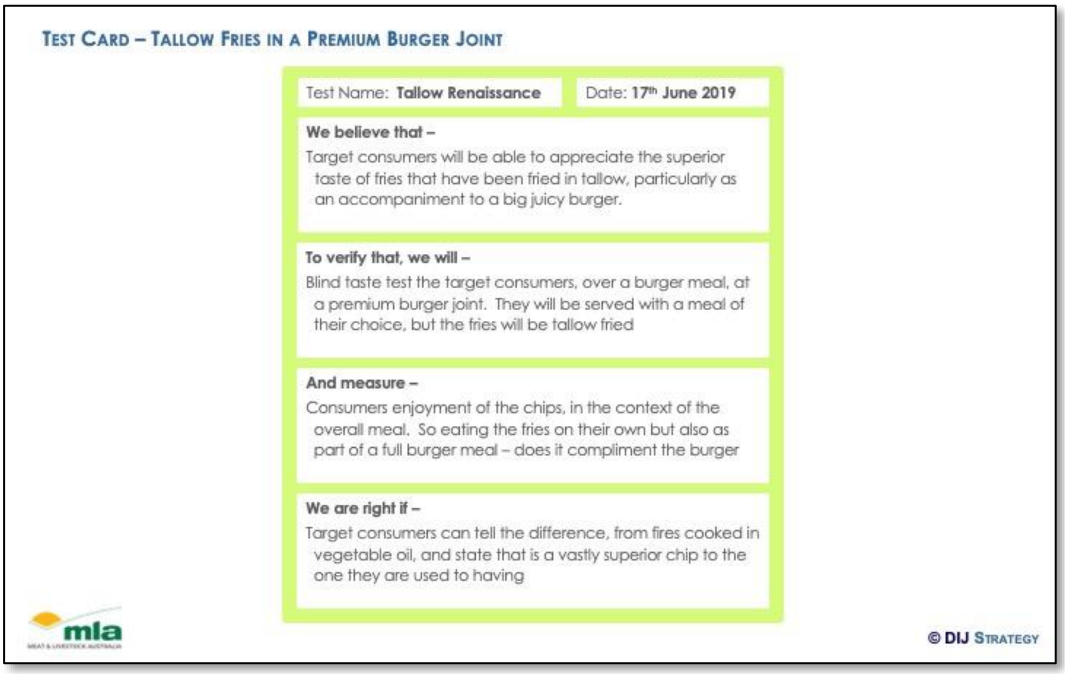
- Delicious but subtle flavour
- Traditional style fries
- Crisp, but with a Silky mouth feel



4.3.9 MVP Test – Delivering on the Value Proposition

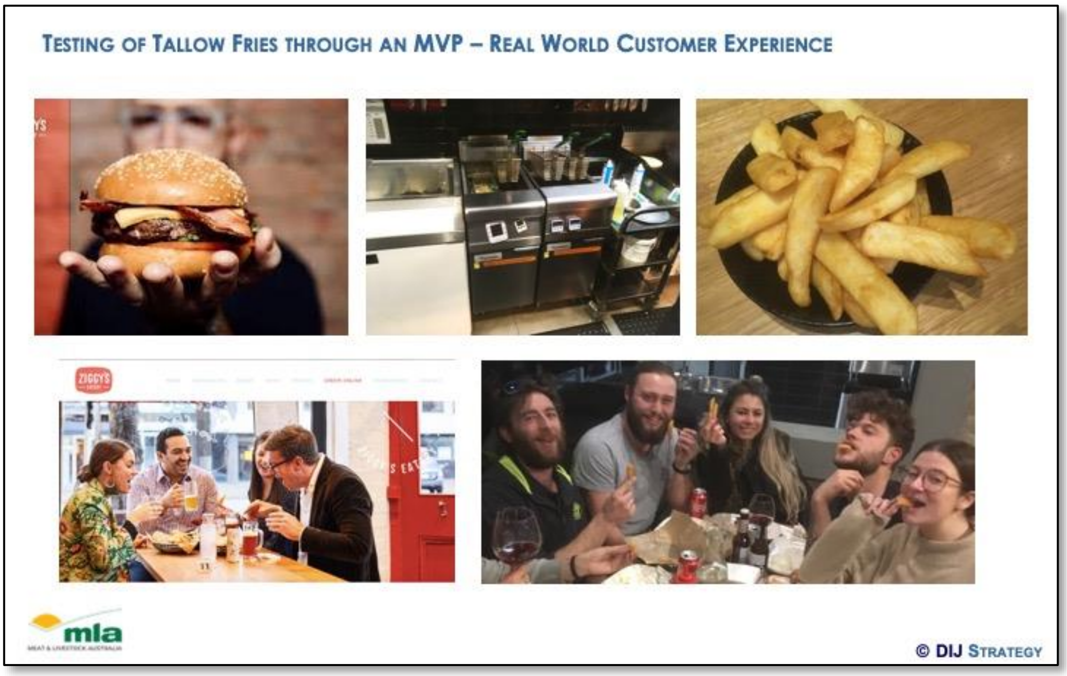
It was felt important to test Tallow fries, to see if they delivered on the Value Proposition. A local Premium Burger Joint (Ziggy's of South Melbourne) was approached to be a part of the test (Burgers are $15 each at Ziggy's). Our reasoning was that the fries should be evaluated in as real-world a context as was possible - accompanying a premium burger.

Tallow was sourced from one of the few remaining tallow distributors in Melbourne – sufficient to fill a commercial deep fryer (20 litres).



A research group was structured around 6 target respondents, held in the Ziggy's restaurant, on their quietest night – Tuesday. Respondents were all regulars to Ziggy's, recruited from their customer database. Besides an incentive fee, respondents were provided with a full meal of their choice – as they would normally have at Ziggy's restaurant.

Everyone ordered fries as part of their meal. Whilst it was not possible to undertake a blind taste test (though this would be the next stage), the respondents were able to undertake a side-by-side comparison of Ziggy's regular fries, cooked in vegetable oil versus the same fries cooked in Tallow.



Respondents loved the Tallow Fries and rated them significantly better than the existing one's fried in Vegetable oil. All respondents claim they would have noticed that this was a far better chip than they were sued to having. It ticked all the boxes against the Value Proposition:

Target consumers loved the tallow fries – they delivered to a 'superior taste' proposition

They weren't just a better chip, but had a subtle, but distinctive flavour

They were noticeably crispier and crunchier – (though possibly due to lack of experience cooking with them)

Some felt that it seemed like they had more residual fat on them – those who were concerned about saturated fat

Whilst they had a distinctive flavour of their own, this was felt to compliment the burger experience, not adversely compete with it

4.3.10 Feasibility Considerations

Though this was never intended to be a part of the project, the success of the tallow fries with their customers, caused the owners of Ziggy's to ask themselves a number of questions.

- Could they / should they switch to frying with tallow? They had recently revamped the menu to offer more vegan friendly options (i.e. Haloumi burger) though they recognised they weren't delivering strict vegan (cooked on the same hot plate as the meat burgers!). However, even Vegans enjoy fries, so this would create a challenge. Respondents view was that those who love a great burger, should not have to compromise their enjoyment just to accommodate the odd vegan.
- Could they use 2 cooking oils? Whilst they had 2 fryers operating, the one for fries was working at a higher temperature than the other one, which was designed for longer, 'cooking things through' (i.e. Schnitzels). Thus, it would require purchasing a 3rd fryer (approximately $5K).

The whole discussion did force the owners to consider who they were trying to appeal to and what they wanted to stand for beyond delivering fantastic sauces / flavour combinations, which was the basis of their advantage.

5 Discussion

5.1 Completing the Design Led Approach

In assessing each opportunity space, the path towards a realisable solution, is at best, only half way complete. Having undertaken the Discover and Define phases, it has been possible to determine a succinct definition of the opportunity and go some way to developing a Design Brief. However, this by no-means represents a complete solution. The opportunity still needs to be developed, iteratively testing and further developing the Value Proposition, to realise a desirable offering. This stage also entails Feasibility assessment – ensuring the offering can be produced and delivered in the market place. Further to this stage, is Deliver – the development of a commercially viable solution, ensuring that a worthwhile and sustainable margin can be realised, thru a defined business model.

5.2 The Project Scope

The scope of this project was about breadth, rather than depth. In looking at a number of different opportunity spaces, thus it has not been possible to explore any one in great depth. For example, a target customer has been pre-identified as the focus for the research. However, this segment of consumers might not be the largest, nor represent the greatest opportunity to value add. Questions such as these, need deeper investigation, particularly as the project looks to deliver a Value Proposition, with Feasibility and Commercial Viability.

6 Conclusions/recommendations

6.1 Further development of Opportunities

It is recommended that both the Natural Bovine Collagen for Joint and Tendon Regeneration, and the Renaissance of Tallow Fries are further developed as opportunities. Both have significant value adding and commercial scale to warrant further investigation. Hopefully, one or more interested industry partners can be identified, who seek to be a part of the next stage of these journeys.

The opportunity for Chips with Real Meat Flavour is very real. However, the question remains as to whether product offerings can match expectations. It is recommended that interested parties, with development capability are provided with the project learning's and further exploration commenced, to assess whether the desired value proposition can be delivered upon

6.1.1 Natural Bovine Collagen for Joint and Tendon Regeneration

It is recommended that more extensive work is undertaken in this area. There is believed to be an underground movement of our target customers who are using this product for the purposes that have been outlined. An essential first step is to understand the benefits they are realising from using Bovine Collagen.

The second step is to undertake an extended usage test. The efficacy of this product likely needs 4 to 6 weeks to have a noticeable impact. Thus, it is proposed that this type of time frame forms the basis for future testing.

There are a number of further steps with validating Desirability, as well as Developing Feasibility and Viability considerations.

6.1.2 Renaissance of Tallow Fries

Tallow Fries is a more immediate opportunity – it is not as if tallow fries weren't once a popular offering. The challenge here is that the world has changed considerably, since such time. To state that tallow is a better frying oil is naive! Whilst it has some superior properties, it does not necessarily win on every dimension, both from a consumer perspective and trade channel perspective. Further investigation needs to be undertaken to identify where it best fits in the world – which channels and potentially occasions when tallow fries would be a clear winner.

With the work undertaken to date, there emerged clear feasibility challenges that need to be considered. For example, Premium Burger Joints have recently sought to engage Vegans, as part of an increasingly diverse offering. Whilst it is easy to offer a falafel burger, what are the implications if all fries are cooked in tallow, rather than vegetable oil. There are a number of options available, that require making some choices, but each of these needs to be considered in the development of a robust commercial viability case, in support of the widespread adoption of tallow for deep frying.

7 Key messages

The greatest barrier to realising value-adding for the non-meat part of the animal, is a reluctance to separate these components at the processing level. If the mindset is that they are inherently low value offerings and processing efficiency is given sole priority, then it is unlikely that justification can be made to separate any one component. It is only by seeing the value in each and every one of the separate components (offal, bones, etc.) that new practices can be adopted that allow each to be separated and value realised.

A further argument to realising value from these secondary components, is the sustainability angle. The more each animal can bring valuable benefit to diverse industries, the greater is the justification that each and every animal is being fully used. Conversely, if animals are only being grown to usefully source, only a minor proportion of the overall animal, then this makes the industry seem wasteful.

This analysis has focused on instances where the economic value is more able to be realised at the Producer or Processor level. It is argued that where businesses are solution providers, such as manufacturing Glucosamine type supplements, often the type of the Collagen is not identified (i.e. Bovine), let alone it's source (i.e. Australia). In this type of instance, the raw, primary ingredient is most likely being sourced as a commodity. In contrast, if we can find opportunities for Bovine Collagen, in their natural form, there is far greater opportunity to realise value for the Producers and Processors from this offering.

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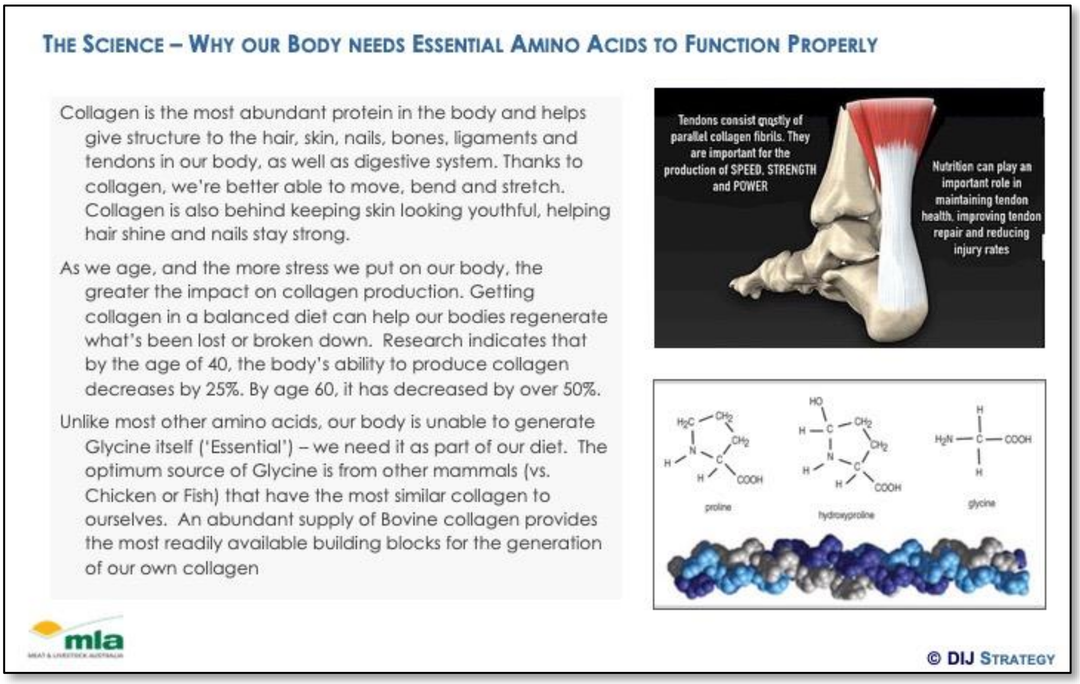
MLA final report V.RMH.0079 and V.RMH.0059

9 Appendix

9.1 Reference Point Case Studies

9.1.1 Natural Bovine Collagen

There are a number of supporting arguments for this opportunity. Keiser is a rehab gym for our target customer, that is growing strongly in Melbourne. In support of our Value Proposition, there are elite sports performers, who in part, put their enduring success down to the use of Bone Broth.



9.1.2 Real Meat Flavoured Chips (Crisps)

The following examples show how Chips have reached a ceiling, in terms of how far they can go in developing a premium offering. In contrast the ice cream category has been able to take the category to another level, through a focus on real ingredients:

9.1.3 Renaissance of Tallow Fries

Whilst the argument around the healthiness of different oils and the context of usage, is best left to the health professionals, there are a number of angles worthy of further consideration. The growth in value of butter and how it is now the preferred option, amongst many, versus margarine, has clear parallels to the tallow opportunity. Other examples, like Donuts, or the historical reference for McDonald's fries reinforce the tallow opportunity.

Surprising Popularity of Donuts

Trend reports would have us believe that Donuts would not be successful - deep fried, high sugar content, un-natural & processed carbs

Where Cup Cakes were largely fad-type success, donuts have not only endured, but gone from strength to strength …

In just two years, Doughnut Time has gone from its tiny, hole-in-the-wall beginnings in a Brisbane pizza shop to now having 25 stores across Australia and more recently London

Novelty flavours – Nutella, Golden Gay Time, Tim Tams are all new flavours

Those 30-seconds of euphoric bliss, or however fast you consume it, might rest comfortably on your hips but for most, it's completely worth it.

"We were experimenting with flavours like Nutella and salted caramel which then led to these over-the-top crazy toppings that became the Doughnut Time style. We also asked customers what they wanted and used that as a guide,"

What made McDonalds Great

Before 1990, McDonald's fried up their French fries in beef tallow. It was a mix of fat and starch perfected over years of experimentation. Then a man in Omaha named Phil Sokolof had a heart attack. His doctor told him that saturated fat and cholesterol were to blame and Sokolof went on a national crusade to take the fat out of America's food, with McDonald's on the top of his kill list. And somehow he won.

McDonald's had been using beef tallow to make their fries from the pre Ray Kroc days. It was the amazing luscious crispiness of the McDonald brother's fries that initially got Kroc's attention in the first place. That's how good they were. But in 1990 all of that changed.

McDonald's, Burger King, Wendy's, et al changed their oils to corn, soy, or cottonseed oils. This, in turn, created a whole mess of other problems because those oils are trans-fats heavy — which is by far worse than saturated fats. Gladwell notes that the big fast food chains devised vegetable oil blends that eliminated trans-fats, but created an extremely unstable oil for cooking with, especially when compared to the stability of animal fats.

Fast forward to present day. The crusade Sokolof waged against saturated fat has been thoroughly debunked as pseudoscience with a dash of propaganda from the sugar industry. The most damning section of Gladwell's podcast is the moment when he blind taste tests the usual vegetable oil McDonald's fries against the same fries cooked up in beef tallow.

Gladwell brings in a set of millennials for this particular test. His logic is that people under the age of 27 will never have had the pleasure of tasting McDonald's beef tallow fries. The blind tasting is unanimous in favor of the beef tallow fries. Because beef fat fried potatoes are glorious.