final report

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Pilot Trial of track and trace label of High value Australian steaks for retail ready VSP into China

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Abstract

The Real Thing intends to launch a range of tracking devices GS1 integrated track and trace solution for primary producers. As a primary producer ‘product cloud’ bringing producers deep insights on how their products are being interacted with in the supply chain, and at the point of sale. Its aim, to shield producers from risks arising from Biosecurity, Food Safety and Market Access, in a post Covid-19 world.

The Real Thing is 100% Australian owned. Part of our platform’s capability and the focus for the MLA grant has been on stopping the threat of counterfeiting of Australian products overseas. There are some whom estimate 50% of all Australian Branded exports are fraudulent and misappropriately labelled. Many high-quality brands are being counterfeited at an alarming rate. To address this problem, ‘The Real Thing’ as part of MLA Donor Company project, designed and tested in China an Near-field communication (NFC) encrypted label solution; making it impossible for bad actors to copy Aussie packaging and pass off shoddy products’ as ‘”The Real Thing”. This report is a summary of the solutions developed.

On 29th April 2021, the product range was tested in Beijing where the feedback was positive which provides confidence that the technology will be received positively in China’s market.

Executive summary

Background

The Real Thing is 100% Australian owned. Part of our platform's capability and the focus for the MLA funding support has been on stopping the threat of counterfeiting of Australian products overseas. It is estimated 50% of all Australian Branded exports are fraudulent and misappropriately labelled. Many high-quality brands are being counterfeited at an alarming rate. An outcome of this project has been 'The Real Thing' successfully designing and testing in China, an NFC encrypted label solution; making it impossible for bad actors to copy Aussie packaging and pass off fake products. Within this report is a summary of the solution with anticipated next steps to engage wider Australia red meat industry to consider applying the solution in key markets.

Objectives

The following key objectives drove the research in developing a platform for smart labelling and customer engagement. Our solution has provided three core deliverables.

1. Smart Labelling: Giving MLA (Meat & Livestock Australia) members the ability to affix smarter labels and guarantee internationally compliant packaging, utilising:
    a. Serialised QR codes
    b. NFC marketing labels (tap to view technology)
    c. Encrypted NFC labels anti-counterfeit (tap to view authenticity technology)
    d. Temperature tracking (HACCP Compliance)
2. Traceability: Have a world class traceability solution for tracking product from the farm to the plate. Biosecurity, Food Safety and Market Access is assured.
3. Marketing: Enable instant QR code or tap NFC engagement directly via a product label. Educate MLA member audiences, build bespoke loyalty programs, competitions and connect with them on social media.

Methodology

Due to the creative and innovative nature of the Design Led Approach, there exists a large number of frameworks, toolkits, models and methods that have been constructed in order to best guide the strategic process, maximising positive outcomes and innovative solutions for businesses. Intensive and extensive research has been undertaken by The Real Thing, in conjunction with Haines Consulting Group, in order to analyse and evaluate various toolkits and methods to measure alignment with this project. In effect, a prototype was developed tested in-house, before application in market in China with key insights and data recorded.

Results/key findings

The system identify original Australian made products and providing a truly unique user experience. Completely portable, manufacturers can manage high value meat items movements directly from their device. Our platform creates a richer, clearer traceability dataset that supports product and brand quality claims, both domestically and internationally. Inherent system characteristics ensure accurate validation that goods are genuine Australian products, preventing substitutions and reducing food fraud. Trust in food is being challenged as fraud vulnerabilities increase. Beyond the financial impact, food fraud can lead to serious public health risks and damage brands. Ultimate system characteristics provide traceability, biosecurity, food safety and product management through evidence-based, data in real-time and on-demand. By using our authentical system, retailers and consumers will be able to validate with certainty if our high value meat product is Australian.

Benefits to industry

This project was implemented because Australian produced agricultural products are being counterfeited by lower quality fraudulent products. Therefore, this project was to ensure the security of Australian products but facilitates international purchases confidence that they are buying their products against a trade-off for incorporating the Real Things system.

Industry benefits that have come with this is consumer confidence because this product removes counterfeit products from the market and provides evidence of assurance. There is an increase popularity in China for Australian red meat products and these products are provided additional security because of solutions of The Real Thing technology.

Future research and recommendations

Due to the success outcome of the trial the next step is to commercialise the product. The “Real Thing Sticker” is a highly innovative system, ensures the authentically of high value agricultural products. It enables the manufacturer to manage their properties and prevent potential frauds and losses of income. Moreover, identification of customer engagement and difference pricing points is critical. Consumer analysis on varying pricing should be conducted.

Note: since completion of this project, MLA has advised they are a participant in the CSIRO led Trusted Agrifoods export mission: https://www.csiro.au/en/about/challenges-missions/Trusted-Agrifood-Exports which further highlights the industry’s interest in this space.

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1 Background

The Real Thing completed a MLA Donor Company project in 2020/21 that utilized a a **GS1 integrated track and trace solution** for primary producers. We describe it as **a primary producer 'product cloud' bringing producers deep insights** on how their products are being interacted with in the supply chain, and at the point of sale. Its aim, to **shield producers from risks arising from Biosecurity, Food Safety and Market Access**, in a post Covid-19 world.

Part of our platform's capability and the focus for the MLA grant has been on stopping the threat of counterfeiting of Aussie products overseas. It is estimated up to 50% of Australian Branded product found overseas are fraudulent and misappropriately labelled. Many high-quality brands are being counterfeited at an alarming rate. We are happy to announce we have successfully designed and tested in China an NFC encrypted label solution; making it impossible for bad actors to copy Aussie packaging and pass off shoddy products as The Real Thing. Within this report we have collated a summary of our solution and would love to work with you to further assist MLA members.

The Real Thing has been working with the MLA (Meat and Livestock Australia) to develop a platform for smart labeling and customer engagement. Our solution has provided three core deliverables.

1. **Smart Labeling:** Giving MLA (Meat & Livestock Australia) members the ability to affix smarter labels and guarantee internationally compliant packaging, utilising:
    a. Serialised QR codes
    b. NFC marketing labels (tap to view technology)
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2 Methodology

Due to the creative and innovative nature of the Design Led Approach, there exists a large number of frameworks, toolkits, models and methods that have been constructed in order to best guide the strategic process, maximising positive outcomes and innovative solutions for businesses. Intensive and extensive research has been undertaken by The Real Thing, in conjunction with Haines Consulting Group, in order to analyse and evaluate various toolkits and methods to measure alignment with this project. From the research and analysis undertaken, it has been evaluated that the majority of Design Led methodologies comprise of the following five stages (or their interpretative equivalents), which encompass a set of micro-stages within each point:

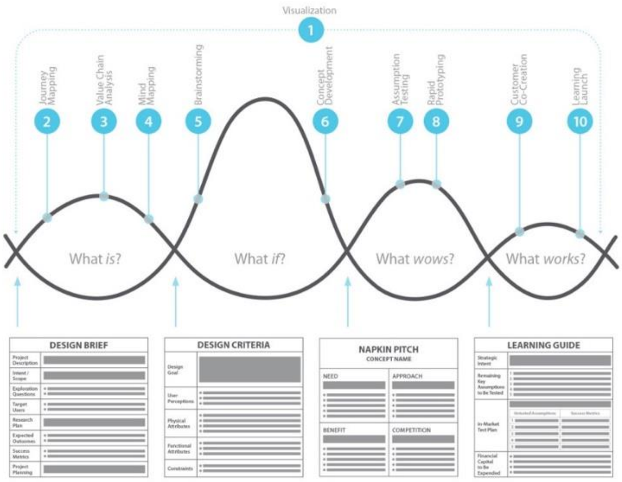
1. *Empathise:* Gain an empathetic understanding of the problem you are trying to solve.
2. *Define:* Put together the information you have created and gathered during the empathise stage.
3. *Ideate:* After growing to understand your users and their needs, designers are ready to start generating ideas.
4. *Prototype:* Produce versions of the product in order to investigate features and real-time solutions to problems.
5. *Test:* Rigorous testing of the product and market strategies using the best solutions identified during the prototyping phase.

Due to the innovative and developmental nature of the process, the methodology is cyclical, both collectively and intra-cyclical between sub-stages where further research, developments or insights are required to find the best workable solution for the problem.

After extensive evaluation of various frameworks, particularly with regards to alignment of project objectives, industry and food processing requirements and expected outcomes, the following Design Led Framework has been selected for use in this project.

This specific Design Led Thinking framework is taken from Jeanne Liedtka and Tim Ogilvie’s Designing for Growth: A Design Thinking Tool Kit for Managers.

Figure 3 Design Led Thinking Model



Author's Jeanne Liedtka and Tom Ogilvie state the following about this model:

"The analytics-first mindset works fine for process improvement, but not for innovation. Our over-reliance on analytics denies our human capacity for creativity and results in uninspiring products and services, low growth, and pessimism about the future.

Design thinking is the way out of this trap. Great growth opportunities are indistinguishable from bad ideas at first, and there is no handy source of data to tell you which is which. Only a customer playing with a prototype can answer that."

This framework was selected due to its customer-centric approach, emphasis on establishing key points of difference and value-added propositions, as well as its logicality and functionality aligning with the regular processes involved in food production and development. There is a clear emphasis on product offerings – rather than merely services – which correlates with The Real Thing's need to establish product offerings that elicit significant perceived value from consumers. This specific model's integration of strong customer-driven problem-solving applications is also of high importance for this project, where The Real Thing are seeking to build a strong brand base in a new export market(s) in which they have not previously operated, with cultural and market differences expected to highly influence design and innovation solutions.

In summary, the key approaches undertaken included:

1. Visualisation
2. Journey Mapping
3. Value Chain Analysis
4. Mind Mapping

5. Brainstorming
6. Concept Development
7. Assumption Testing
8. Rapid Prototyping
9. Customer Co-Creation
10. Learning Launch

3 Project objectives

The following key objectives drove the research in developing a platform for smart labeling and customer engagement. Our solution has provided three core deliverables.

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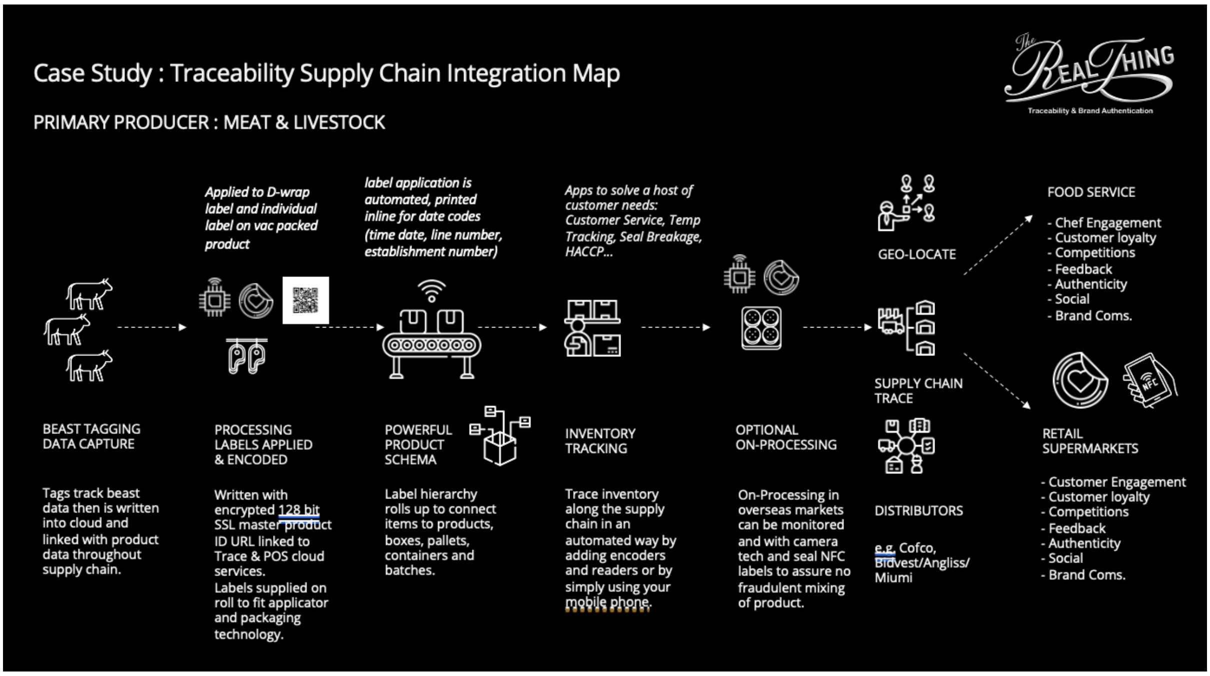
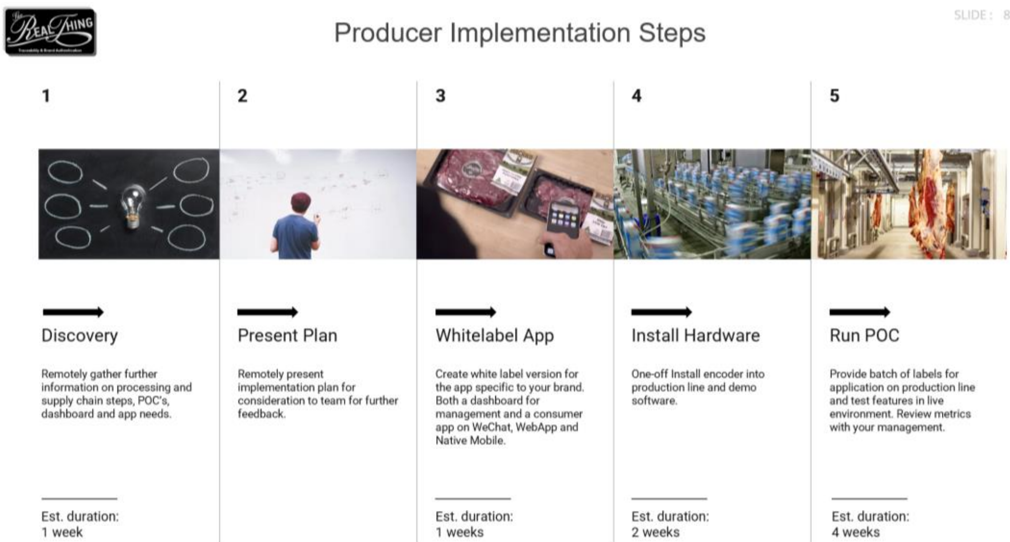
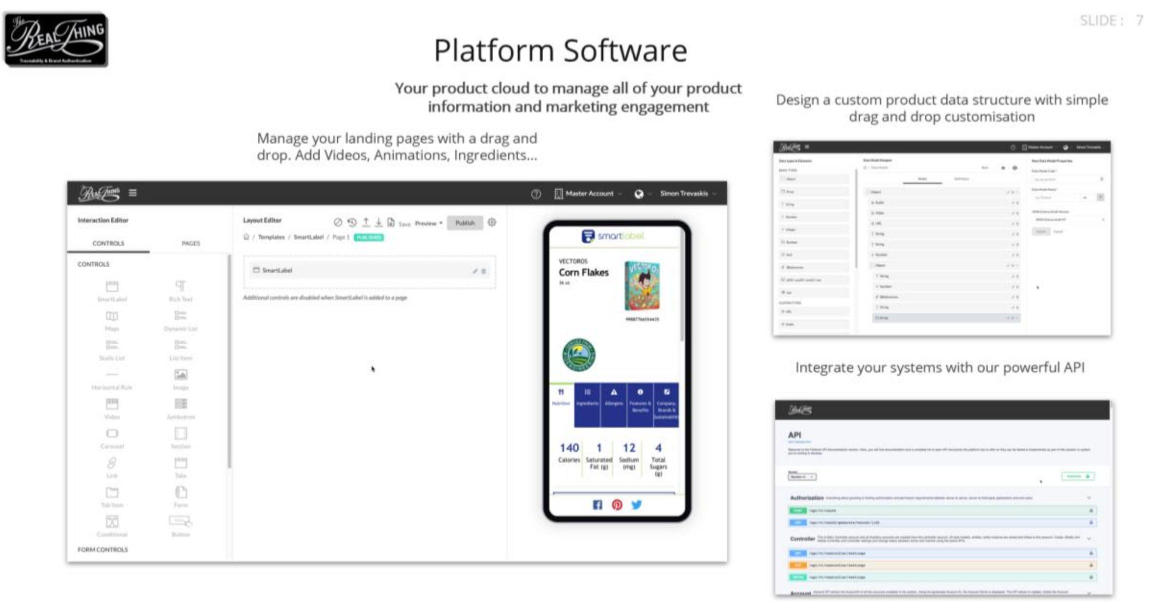


Producer Implementation



- Discovery: Remotely gather further information on processing and supply chain steps, POC's, dashboard and app needs.
- Present Plan: Remotely present implementation plan for consideration to team for further feedback
- Whitelabel App: Create white label version for the app specific to your brand. Both a dashboard for management and a consumer app on WeChat, WebApp and Native Mobile.
- Install Hardware: One-off Install encoder into production line and demo software
- Run POC: Provide batch of labels for application on production line and test features in live environment. Review metrics with your management.


SLIDE : 6
Label Integration
QR Code
Optional NFC Anti Counterfeit Technology
128 BIT ENCRYPTED NFC TAG
Encoder
NFC ENCODER
CUSTOM PROGRAM DATA
product line
use by date
batch
Product ID
URL
Encode
We design a solution to retrofit into your existing supply chain to be traceability centric.
Supply Chain Encoders, Printers and Applicators
100% AUSTRALIAN
沙朗牛排
菲力牛排
Encoded at point of packing with key product data and enabled for individual or batch product track, trace and brand authenticity.


SLIDE : 7
Platform Software
Your product cloud to manage all of your product information and marketing engagement
Manage your landing pages with a drag and drop. Add Videos, Animations, Ingredients...
Design a custom product data structure with simple drag and drop customisation
Integrate your systems with our powerful API
Interaction Editor
Layout Editor
Master Account
Simon Trevaskis
Corn Flakes
140
Calories
1
Saturated Fat (g)
12
Sodium (mg)
4
Total Sugars (g)
API

Milestone Objectives

Milestone 1

Developing a high value strategy for identification and approval of tracking of Australian high value red meat steaks in China

The participant will achieve the following objective(s) to MLA's reasonable satisfaction:

Objective 1

Market analysis – Evaluate market acceptance for specialised Identification system for Australian made high value red meat steaks and more.

Pilot trial of up to 60 stores in Shanghai and would be willing to place the "Real Thing sticker" embedded with DSS authentic guard and QR coding and documenting the retailer to participate in a video shoot about the trial.

Develop proof of concept high value red meat-based products and trial batches to validate voice of customer feedback and seek out criteria for value chain partners.

Objective 2

Testing the usability and documenting the uptake of consumers with activation method and document the consumer response. Establish the value of authentication in a Chinese retail environment

Objective 3

Gathering and analyzing the temperature data and the use of shelf-life model.
– This was not completed because of COVID as travel was restricted and not able to send product to china due to processing plant being restricted as well

Objective 4

Complete scale-up testing on the completed product/service offer (including packaging design, review labelling compliance, marketing mix).
– This was not completed because of COVID as travel was restricted and not able to send product to china due to processing plant being restricted as well

Objective 5

Present key findings, recommendations, cost benefit analysis and lessons learned in a final report.
– This was not completed because of COVID as travel was restricted and not able to send product to china due to processing plant being restricted as well

4 Results

4.1 Market Analysis

Market research has been undertaken prior to commencement of this project, from a wide and varying range of sources including reports published by Meat & Livestock Australia, Alibaba industry presentations, IBISWorld reports, market research reports from companies such as Nielson and information provided by government agencies. Milestone 2 built upon these prior findings and sought to validate research and insights, whilst the primary market research initiatives undertaken during this period also sought to uncover niche insights that will be of value to The Real Thing and other value-added Australian food trackers seeking to enter the Chinese market.

Market research findings to date primarily focused on four major elements related to this project: meat products, technology and supermarkets in China and online shopping in China.

Chinese Market Prominence

Australia's beef trade has boomed in recent years, based largely on Chinese demand. In 2019 prior to COVID, the country's imports reached $2.87 billion, double the value of imports in 2018 which were worth $1.37 billion. China accounted for 24 per cent of total Australian beef exports last year, up from 14 per cent in 2018 and 11 per cent in 2017, Meat and Livestock Australia figures show.

Notably, beef imports in China rose 1600% between 2010 and 2015, representing the Chinese market’s desire for the red meat and market opportunities for businesses to cater value-added products to the market (MLA). Of China’s official beef imports throughout the year of 2015, Australia contributed the largest share at 34% (MLA), with Chinese beef consumption per capita totalling 4.9kg (MLA). In this same year, China was the fourth largest export market for Australian beef both in volume and value terms (MLA). In 2015, Australia was the only country with access to export chilled beef into China (MLA), a major factor that has contributed to Australian red meat producers sustained growth in the Chinese market from the onset, these figures solidify the importance and interdependence of Australian red meat (particularly beef) producers and manufacturers and the Chinese consumer market (IBIS). However, whilst these figures are extremely favourable and representative of clear market opportunities, the majority of Australian beef and lamb products exported to China are not value-added products – which on the basis provides growth opportunities for businesses that are willing to satisfy emerging demand within this sub-industry.

Political tensions between Australia and China have ratcheted up sharply since the beginning of the coronavirus pandemic, culminating in a warning last month from China's ambassador, Cheng Jingye, that Chinese consumers could choose to boycott Australian products such as beef and wine out of a patriotic sense of duty. Australia pushed for a global independent probe into the origins of COVID-19 at the World Health Assembly.

China has suspended imports from four large red meat abattoirs, fuelling concern of a campaign by Beijing against Australian producers in response to Prime Minister Scott Morrison's push for an independent coronavirus inquiry. Trade Minister Simon Birmingham and Agriculture Minister David Littleproud were notified in May that four Australian meat establishments – two Queensland abattoirs owned by Australia's largest meat processor, JBS, as well as Kilcoy Pastoral Company near Brisbane and Northern Co-operative Meat Company at Casino, NSW – had been suspended over labelling and health certificate requirements.

Meat Production in Australia

Meat production in Australia is a high performing industry in Australia, with annual revenue totalling $21.1 billion. Despite the industries relative domestic maturity, the emergence of new export markets facilitated through an increasing number of free or low-tariff trade agreements with a range of countries, particularly within Asia, have facilitated sustained revenue growth for Australian businesses. Beef and veal products account for 70.5% of industry revenue, whilst lamb and mutton products account for 20.1%, a product category that has grown significantly over the past five years. Pig and other animal products account for the remained of industry revenue.

Almost 60% of industry revenue is generated from export markets (IBIS), signifying Australian red meat producers and manufacturers need to cater export products to foreign market demands, both in terms of product quality and features, as well as catering value-added product developments to local market tastes. Australia’s strict food safety and processing laws, coupled with the nation’s known excellence in producing high quality meat products, result in Australian meat products being of high demand internationally, with a universally recognised reputation for high quality and premium products. This presents key market opportunities solidified through research, where more than 80% of people in China surveyed by Nielsen last year said they were willing to pay more for foods without undesirable ingredients, much higher than the global average of 68% (NIELSON).

Supermarkets in China

The supermarket industry in China is also an industry in its growth stages, with key growth drivers over the past five years being the Chinese government's program to establish a national rural retail network and strong rises in consumer purchasing power, developing into a $183.8 billion industry. As expected, food accounts for 54.2% of all supermarket revenue, whilst 37.2% of all supermarket establishments are located in East China, where the influence of cities such as Shanghai mean that average income levels are higher than other regions of the country (USDA). With the Chinese government having a preference for larger, domestically owned supermarket chains, policies and subsidies are in place to assist with domestic supermarket chains. However, according to recent surveys, Chinese consumers have low levels of loyalty with supermarkets due to the industry being in a rapid development stage at the detriment to a stable market. The next five to ten years will therefore see large supermarket chains intensively competing with each other to establish high customer loyalty and innovate product and services to meet consumer's needs.

Online Shopping in China

The Online Shopping industry in China is expected to generate $1.23 trillion in 2018, up 20.8% from last year. Over the five years through 2018, industry revenue has been rapidly rising at an annualized rate of 30.5% (IBIS). The high growth is due to extensive development of e-commerce businesses in China, correlated with greater internet and technology uptake in regions outside of major urban areas. The online shopping industry in China is growing at a rate faster than the general economy. This further ties in with broader scale economic development and improved living standards nationally in China, with consumers having more disposable personal income and trusting Chinese e-commerce platforms, such as Alibaba and T-Mall. Chinese consumers view online shopping as more convenient, and prices are typically lower than they are in stores. 'Other products', in which food and drink-based products fall under, make up 15.8% of all online shopping sales in China, whilst people aged 20-29 account for 56.4% of all industry revenue. Alibaba is the major player within the Chinese e-commerce sphere, commanding 71.5% of market share, whilst JD.com ranks second with only 7.2%.

5 Key Findings

Meeting the milestone

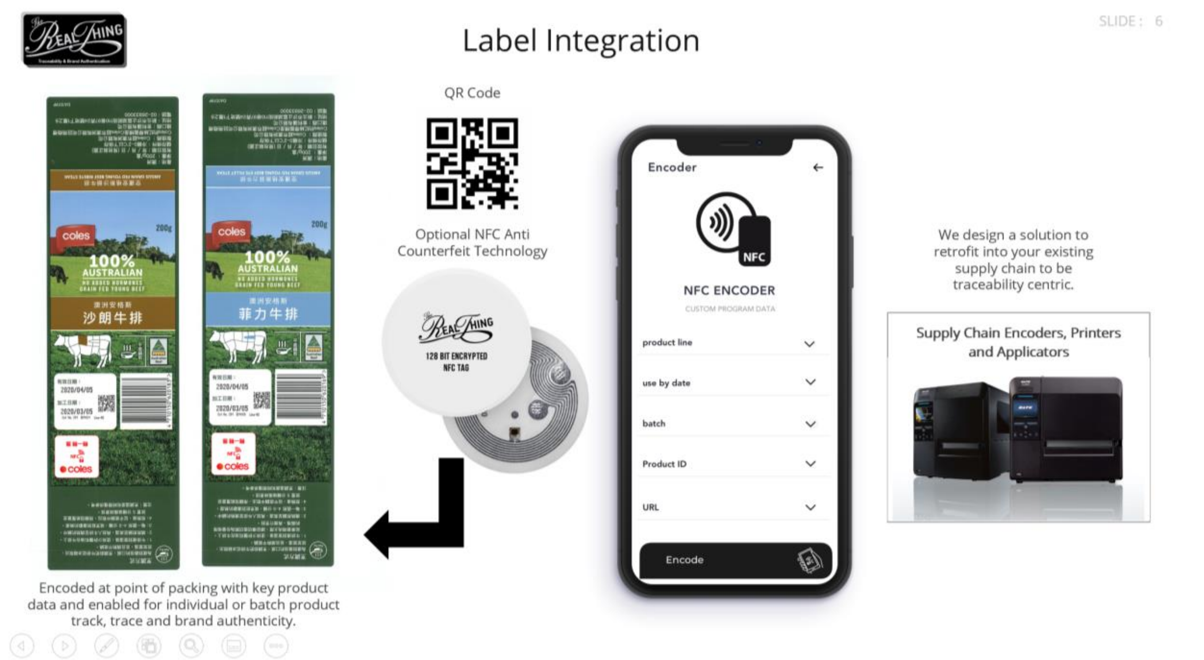
Due to the outbreak of the Coronavirus, The World Health Organization (WHO) said it was concerned about a rise in cases - where the virus that is officially known as COVID-19 was first detected in the city of Wuhan in Hubei province in late December - This has impacted our trading partner China on a mass scale. Public health emergency' China's history. The coronavirus pandemic that has killed over 2,400 people in China's 'largest public health emergency' since its founding. President Xi Jinping has said 'it has the fastest transmission, wildest range of infection and has been the most difficult to precent and control'. Xi said at the meeting on curbing the pandemic, according to state broadcaster CCTV.

Due to this outbreak, we have had to push the completion dates out until it is safe to travel to China. However, we have completed all of the due diligence as to the robustness and functionality of the technology

As part of this milestone, we have completed the work with the chosen supermarket outlets for the trial. We had completed the testing on the scan labels and NFC labels ready for despatch

In addition to this we have been in deep discussion with farmers, meet processing partners and brands to develop technical solutions which will seamlessly integrate with current packaging production lines. This critical in situations where change is perceived as a risk in the supply chain.

We had successfully negotiated an agreement with the chosen supermarkets. All the labels have been designed and printed. Those are special unique labels with the authentication technology. The labels contain invisible marking to the naked eye.



Technology for the trial is ready to ensure that trial and test is completed as planned. This is to minimise failures of the first of its type trial and maximise learnings as part of the project.

As part of the Milestone 1 it was identified that the technology of Camera scanning tech is limited and not as robust than the Near Field Communication (NFC) technology. We identified in Milestone 2 that the existing scanning tech does not work in low light conditions. Our findings are that scanning tech and QR Codes are both insufficient in Authentication technology. Due to this we are using NFC Technology with a 99.9% success rate.

Customer Development Discoveries

Initial and direct business-to-business discussions with supermarkets and e-commerce retailers in China have had significant influence on the decision making and design led approach for The Real Thing's expansion efforts into the Chinese market. With prior market research providing insights and key metrics on a range of performance and foresight indicators, undertaking direct communication with potential customers themselves – and therefore customer development discoveries – provided The Real Thing with a range of insights of both a quantitative and qualitative nature, which will have significant implications moving forward.

1. *Can I have exclusivity on the product?*

Chinese companies naturally want to not have too much competition for your product in their territory. Initially you should be careful not to offer exclusivity unless the performance of the company is proven. You may offer exclusivity for one region or platform initially.

2. *Is your product available in Australia and in what outlets?*

Authentication of products is particularly important in China with new invented “Australian” brands being developed all the time. Having genuine products of long-standing credibility is a strong marketing point.

3. *What marketing support can you provide?*

Australian companies know their products better than their customers. How can you help the Chinese convey the benefits to the consumers? With Social Media these days it is possible to produce low-cost blogs, videos and simple marketing material that showcase your products that can be transmitted to large numbers of potential customers.

These key points posed will all be strategic considerations by Australian value-added meat, dairy and wine producers, must effectively address in order to ensure success in the market.

- Early Adopters
- Price Points
- Key Features
- Supply – key partners/activities

What The Real Thing is achieving through the product is ensuring security to buyers on product quality of Australian agriculture.

Business Model design

Preliminary B2B discussions with partners on where/how to test the new product concept and business model for integrated supply chain for Australian made products and managing product security in international markets.

6. Conclusions/recommendations

Due to the success outcome of the trial the next step is to commercialise the product. The "Real Thing Sticker" is a highly innovative system, ensures the authentically of high value agricultural products. It enables the manufacturer to manage their properties and prevent potential frauds and losses of income. Moreover, identification of customer engagement and difference pricing points is critical. Consumer analysis on varying pricing should be conducted.

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It will ensure food security for Australian Exporters. Consumers have greater visibility and control over the purchased products and decisions they make leading to a greater connection to product origins. By virtue of exercising more discretion, consumers will drive favourable industry behaviours, indirectly uplifting industry compliance, efficiencies and overall complementary economies. Significant benefits are foreseeable for biosecurity regulators, agro chemical companies and food safety regulators.

Track and trace capability will maintain Australia's brand integrity and image as a high-quality meat source for global markets.

7. Appendix

1. Background

This project was conducted in line with an academically and industrially aligned Design Led approach; also commonly referred to as Design Led Thinking (DLT), Design Thinking or Innovation Capacity.

Businesses, researchers and product designers have historically recognised that standard approaches to project management, particularly in contexts defined through high innovation, product development and exploration, are not suited to competently administering challenges and changes in operating environments and business needs. When undertaking product innovations and developing a high value strategy seeking to exploit opportunities in international and export markets, diversification of both macro and micro challenges, further eradicate the value of adopting a standardised approach to project management. Consequently, Design Led Thinking has been utilised by practitioners, businesses and researched through academia, as a highly valuable methodology for developing innovative outcomes, whether through product developments, strategic considerations or process improvements.

Design Led Thinking, or what was initially coined as Design Thinking, gained traction and adoption for business purposes at Stanford University in the 1980s and 1990s. Rolf Faste and David Kelley, two proponents that advanced Design Thinking, in an integrated industry and academic setting. Design Led Thinking differs from traditional scientific methods for problem resolution, which are largely characterised through hypothesis testing, as its methodology is designed to achieve practical, creative resolutions of problems, with consideration of emotional content and ambiguous aspects of the problem. This can often be overlooked when utilising scientific approaches. According to a 2014 assessment by the Design Management Institute, companies that utilise Design Thinking – such as Apple and IBM – have outperformed the S&P 500 by 219% over the past ten years. The relevancy of such an approach to an innovative market opportunity; as is present in the case of The Real Thing expand business into China, the UAE and other markets, is evident.

2. Journey Mapping Target customer profiling

Stage 2 of our selected Design Led Thinking Model involves Journey Mapping the full cycle of customer interactions with the brand and/or products. Whilst the Customer Journey Mapping technique needs to be developed from the point of view of the customer, it is important to understand how the customer's thoughts, feelings and touchpoints integrate and align with internal organisational structures, service delivery modes, metrics and key value-added criteria designed to best position The Real Thing within the market.

Journey Map

Stages	***AWARENESS***	***RESEARCH***	***DECISION***	***POST-PURCHASE***
Doing				
Thinking				
Feeling				

Experience				

Stages	**AWARENESS**
Doing	***Word of Mouth:*** hearing about The Real Thing from a friend or family member ***Smartphone:*** seeing The Real Thing on a smartphone, such as on We Chat and other social media platforms ***Computer:*** seeing The Real Thing on a laptop or desktop computer, potentially on an e-commerce website or social media ***In-Store:*** seeing The Real Thing in a bricks and mortar supermarket store, on the shelves
Thinking	▪ What is so special about this product? ▪ Is it superior to the other alternatives? ▪ How can I confirm this product is legitimate and made of high-quality Australian product? ▪ What is the story behind the brand? ▪ Does this work as well as I am expecting?
Feeling	▪ I'm excited to learn more about this product ▪ I don't want to make the wrong choice ▪ What if I can't afford this? ▪ Will I be able to feel comfortable and trust the product from Australian
Experience	▪ It has been exciting to discover this new product. ▪ Branding and packaging is clear – has made the experience easy and enjoyable. ▪ Packaging contains QR codes, making the next step of learning about the products and brand easy and convenient.

3. Research

Stages	**RESEARCH**
Doing	***Social Media:*** Given the prominence of social media platforms culturally in China, many consumers will take to social media platforms to research more on the brand and its products. ***QR Codes:*** The integration of QR codes, that can directly link customers to marketing material regarding The Real Thing and its story will be critical for customers to undertake more research on the brand in a way that is channelled effectively. ***Website:*** The Real Thing website must be adapted to be .cn or Chinese friendly in order for customers to undertake research. ***Price Research:*** Given the frugality of Chinese consumers, it is likely that they will undertake price comparisons and research on the product by utilising the websites and e-commerce platforms of different retailers.

	Word of Mouth: Customers will ask their friends and family if they have tried the product.
Thinking	▪ Does the reputation for high quality and excellence translate into a great tasting product? ▪ Is the product as convenient to cook as the Chinese brands I am familiar with? ▪ What assurances can I be given about food quality and safety, and the origin of the food? ▪ Is this technology viable?
Feeling	▪ Amazement at the quality of Australian technology ▪ Excitement at the product and its origins ▪ Still a slight sense of scepticism; do we believe this product? ▪ This product matches my lifestyle; quick and urban but with uniquely beneficial properties
Experience	▪ Videos and other marketing material are convenient, and tell the story in an easy to understand and relatable way ▪ Learning; about the Australian beef and lamb industry and its reputation for excellence as a whole ▪ Satisfying the senses; sound, video, audio and integrated marketing designed to make the research process as holistically enjoyable for all of the senses as possible

4. Decision

Stages	**DECISION**
Doing	***Mobile Shopping:*** with the large majority of e-commerce purchases made in China made via a smartphone, it is likely that the consumer is shopping (often via social media platforms) for products using their phone. ***In-Store:*** whilst the Chinese awareness to decision process may happen quickly (and consumers may undertake research via their phones whilst in-store), it is paramount that all instore marketing and packaging elements are designed to achieve hedonistic appeal for consumers. ***Family & Friends:*** consulting with family and friends, and utilising people from all influences in the buying and decision-making process may sway a purchase decision (either positively or negatively).
Thinking	▪ How will the product's strong reputation translate into taste and integrate with my lifestyle? ▪ I have paid a premium price for this product; I hope it translates into product quality ▪ This product appears to be superior to the local Chinese products on the market
Feeling	▪ Excitement, and wanting to try out the new product ▪ Slight concern; is this right? ▪ "I have made a good lifestyle decision, and this product matches my fast-paced lifestyle as well as my desire for high quality and safe food products"
Experience	▪ Online e-commerce platforms, many integrated within social media, make the decision and purchase process as instantaneous and easy as possible

	▪ What can be done on purchase to benefit the experience? Does the QR code link to a new video? More marketing material? Positive affirmation of some variety? ▪ The food safety standards and clear origin labelling make the decision less risky in the eyes of consumers, who are guaranteed high quality, safe products

5. Post Purchase

Stages	**POST PURCHASE**
Doing	***Social Media:*** following consumption of the product, it is likely that the consumer will once again visit the brand's social media platforms such as WeChat in order to find out more information. ***Word of Mouth:*** it is likely that consumption of the product will take place with family or friends, and any thoughts or feelings about the technology's ability to legitimately display the security of Australian agriculture
Thinking	▪ Are these counterfeits? ▪ What is the most convenient channel to buy this product in the future? ▪ How can I learn more about where the product comes from?
Feeling	▪ Ease of using the App ▪ Satisfaction in the product and overall experience
Experience	▪ Taste and flavour sensations integrated with the high-quality Australian beef and lamb ▪ The convenience and ease of material available at all stages throughout the buying process, with integrated social media and QR codes ▪ Favourable perceptions of Australian products, particularly value-added red meat

6. Value Chain Analysis

Support Activities	**Firm Infrastructure**	▪ Application of WOFE within China for structural advantages ▪ Outsourcing of localised marketing ▪ Transfer pricing product commodities between Australian and Chinese business	***MARGIN***
	Human Resource Management	▪ Strong current team of employees with adequate experience and passion for the brand ▪ Strong relationships with business consultants, industry bodies and already forged strong relationships with buyers and customers	

		▪ Strategic staff onboarding, and training program designed for ease of integration	
	Technology Development	▪ Culture of product innovation and R&D, with new product combinations constantly being tested and developed ▪ Strong emphasis on digital branding integration within the Chinese market	
	Procurement	▪ Supplier management protocols already in place to protect business and needs of suppliers ▪ Subcontracting and outsourcing expert skills and advice where necessary in order to manage costs	

Primary Activities	**Inbound Logistics** ▪ High integration with suppliers to ensure that buyers receive the products they purchase	**Operations** ▪ Use of state-of-the-art technology with high security capabilities that will always change so counterfeiting does not occur	**Outbound Logistics** ▪ Order handling undertaken by experienced team ▪ Strong liaison with retailers and e-commerce platforms to organise best delivery methods	**Marketing & Sales** ▪ Expert Chinese social media marketing integration ▪ QR code integration within packaging and marketing platforms ▪ Authentic Australian value-added marketing	**Service** ▪ Emphasis on strong relationship management with buyers ▪ Willingness to work with retailers in establishing new lines of products in the future	

7. Product Design Brief

The Real Thing: DESIGN BRIEF	
Project Description	This project seeks to develop a high value strategy food tracking technology based in Chinese banquet products, in China and other export markets, utilising learnings and findings from The Real Thing. Through the application of a Design Led Thinking approach, this project seeks to systematically design an integrated, market-orientated strategy through primary project management techniques that duly provide key insights and an environment conducive to innovative problem solving. The outcomes from this project will provide
Scope	The scope of this project incorporates the development of The Real Thing product from ideation to market launch in the Chinese market, and will incorporate any business development, research,

	marketing or other operational activities that take place before the project deadline.
Exploration Questions	Exploration questions are designed to trigger thought processes that will aid the development of effective market solutions, given the findings and activities performed to date. The exploration questions for this project have been categorised under four distinct areas. ▪ *Questions* How can we ensure our this technology is not counterfeited to copy Australian agriculture? Does the farm have a brand and/or story that will resonate with Chinese consumers, and how can we partner to leverage off the uniquely Australian story? What can be done to ensure exclusivity to meat supply (in the face of Chinese customers attempting to directly source our meat) to ensure our value proposition is protected? ▪ *Customer & Marketing Orientated Questions* To what extent is emotional and hedonistic appeal relevant to Chinese consumers when purchasing value-added Australian agricultural products, and what are the emotional triggers? How do the buying and customer decision making processes differ in the Chinese market? Which communication channels resonate best with our target market in China and how can we best utilise them? What unique, Australian selling and value propositions can we market in order to extract maximum value from the market? ▪ *Product & Manufacturing Orientated Questions* What product adaptations and/or innovations are required to best cater towards local market tastes and preferences?

	Is it more suitable to process the products in Australia or in China, in order to reach organisational objectives? Moving forward, what can we do to ensure we stay ahead of food and product trends in order to achieve first mover advantages with regards to portfolio diversification? ▪ *Distribution Orientated Questions* Which distribution channels provide key market entry advantages for The Real Thing when seeking to establish market share in China? Are there growth and marketing opportunities for The Real Thing How can our product portfolio be designed in order to extract maximum value from different retail channels?
Target Users	The target users (inclusive of primary users and buyers to establish the project holistically), can be segmented into the following two user sets: *Retailers* Target retailers (both bricks and mortar supermarkets and e-commerce retailers), must have a strong presence in the South-East of China (ideally based in Shanghai), with an established brand and reputation for high quality, fresh and premium foods. *End Consumers* 80% of the consumer target market are female, aged between 25 to 45, living in Shanghai or 500km south and west of Shanghai.
Research Plan	Following Milestone 1 and Milestone 2, which incorporated large elements of secondary and prior market research, ongoing research efforts moving forward will be primary in nature and undertaken in conjunction with ongoing efforts to have the products in store by Q4 of the 2017/18 financial year.

Expected Outcomes	From this project, The Real Thing within 3 months of launching their products in the Chinese marketplace expects it to be adopted by some companies. Within 12 months, The Real Thing plans to be the leading food tracking product on the marketplace. Overall, this project is designed to establish The Real Thing the Chinese market.
Success Metrics	Success metrics for this project are built around The Real Thing 's ability to successfully capture market share within the Chinese markets: - Chinese social media engagement - Net profit margin per use - Total sales quantity - Customer satisfaction
Project Planning	Over the coming period, The Real Thing plan to: - Control all supply and value chain costings - Further negotiate with Chinese retailers - Establish direct marketing and social media channels designed to communicate The Real Thing brand effectively

8.

Key Foresight Trends

Key Forecast Growth Metrics:

▪ Online shopping in China is forecast to increase at an annualised 20.7% to $2.5 trillion, five years through to 2022 (United States of America Department of Commerce 2017).

With the improvement of comprehensive services and greater internet penetration throughout the company, the online shipping industry in China is poised for significant growth – albeit at lower annualised levels in comparison to the past five years. In 2016, 63.8% of Chinese internet users had made a purchase online, a figure which is predicted to increase as the already high customer confidence in e-commerce platforms is expected to increase.

▪ Supermarkets in China are forecast to increase at an annualised 4.5% to $228.7 billion, five years through to 2022 (IBIS)

Revenue growth is expected to increase steadily, as the number of supermarkets increases and consumer demand continues to expand. With an expected annualised economic growth of 6.5% over the same five-year period, the purchasing power of consumers is expected to rise, boosting disposable income – a key determinant in the success of the industry. Mergers and acquisitions are set to take place over this period, with the industry becoming more competitive, driving inefficient operators out of the market. Continued political stability and government support for the industry, particularly with expanding into rural areas, will aid the growth of the industry.

▪ Meat processing in Australia is forecast to increase at an annualised 2.4% to $23.7 billion, five years through to 2022-23.

This is considered quite slow growth due to countries with delipidated supply such as the USA set to recover, and per capita meat consumption forecast to remain stagnant. However, it is anticipated that the industry will produce a greater portion of value-added and premium products for export to increase revenue. This ties in with free-trade agreements with China, Japan and South Korea likely to continue to support exports as tariffs are set to decrease over the next five years. This correlates with the basis of this project and The Real Thing's intent to establish a brand in China.

Key Food Industry Foresight Trends:

Every year, London-based market research firm Mintel Group's team of global expert analysts identify and analyse key trends that are predicted to impact upon the global food and drink industry in the year ahead. Mintel's Global Food and Drink Trends 2018 identified the following five trends:

▪ *Full Disclosure*

"In our new post-truth reality, consumers require complete and total transparency from food and drink companies."

With food sourcing and safety becoming globally more important, consumers are demanding greater honesty, transparency and assurances from food manufacturers. This includes disclosures about how, where, when and by whom food and drink is made or grown, harvest and manufactured for consumption. Some countries, such as here in Australia, have already implemented tougher food labelling laws for greater transparency and full disclosure.

▪ *Self-Fulfilling Practices*

"As more consumers find modern life to be hectic and stressful, flexible and balanced diets will become integral elements of self-care routines."

With the frantic pace of modern life and constant connectivity, more consumers are forecast to focus on 'self-care' and prioritise time and effort to themselves. As such, more customers are looking for products that will contribute to good health and wellbeing, such is the rise of 'superfoods' and other specialty products with unique health and healing benefits. Nutritional, physical and emotional benefits will be key differentiating factors for products.

▪ *New Sensations*

"Texture is the latest tool to engage the senses and deliver share-worthy experiences."

The sound, feel and satisfaction that food textures provide will be a key trend for food manufacturers in 2018. Texture is the next facet of product design that can be leveraged to provide customers with a holistic and interactive experience and provide key points of difference to create value.

▪ *Preferential Treatment*

"A new era in personalisation is dawning due to the expansion of online and mobile food shopping."

With the ongoing emergence of new consumer technologies, more and more consumers are utilising new and advanced channels and technologies in order to sample and buy foods. This presents opportunities for business to undertake highly targeted marketing activities, such as customised recommendations and solutions to save customers time and money – providing key benefits for both customers and food producers.

▪ *Science Fare*

"Technology is being used to engineer solutions for our stretched global food supply."

With a technology revolution playing out in the food and beverage industry, some forward-thinking companies are already engineering solutions to replace traditional farms and factories with scientifically engineered ingredients and finished products. Whilst this trend is only emerging, there is the potential to design food and drink that is more nutritious or can cater to specific health or dietary needs.

Key Chinese Market Foresight Trends:

The team at Mintel also publish an annual Chinese consumer trends report. A team of experts and analysts identify five key predictions that will influence the Chinese market, and whilst the findings extend outside the realm of food and food marketing, there still remains a heavy food influence within the predictions.

▪ *Machine Learning & Artificial Intelligence*

Artificial intelligence (AI) products that can help consumers create an improved environment to work, live and shop will appeal to Chinese consumers. Consumers will generally prefer opt-in choices and are likely to embrace machine learning if it makes their lives easier. As people desire a seamless lifestyle, more aspects of life will be incorporated with machine learning capabilities. Greater personalisation of these products will be available through AI and machine learning in the months and years to come according to Mintel.

▪ *Playful Interactions*

Higher levels of social stress are driving China's younger generations to seek more informal and playful interactions in the virtual and physical world. According to Mintel research, 63% of 20-24 year olds play online games to relieve stress. Consumers will embrace activities they can do by themselves, without the pressure of relying on people. They are also seeking playful solutions online and offline, that can help them to strengthen relationships with people around them.

▪ *A Balanced Lifestyle*

Consumers will prioritise better quality products that offer them greater life-enhancing benefits. Products that also offer a better balance with nature and are produced by environmentally ethical brands will be of interest to Chinese consumers. Mintel believes that brands which demonstrate how the ethics behind their product provide benefits to consumers will tap into this growing trend.

▪ *Exploring One's Sense of Self*

Chinese consumers will become increasingly involved in creative work and choosing flexible working arrangements as well as travelling to unusual places within China. As consumers' product choices are growing, they will choose brands that help them express their individuality in a globally connected community. According to Mintel, more brands will offer products and services that allow consumers to enhance themselves and particularly the way they express themselves.

▪ *Mobile is the Way Forward*

Chinese consumers are relying on mobile technology to support many aspects of their lives. The speed and convenience offered by technology is behind its main appeal. 87% of Chinese consumers in major cities. Recently, virtual reality and augmented reality will enter the mobile space and complement one another. This is expected to create greater work-life efficacy and multi-tasking capability, Mintel says.

Mergence and Takeaways:

From the range of foresight trends analysed above, three key takeaways have been formed that are predicted to influence value-added red meat producer's efforts when entering or participating in the Chinese market, and similar markets within Asia and the Middle East:

▪ *Growth of Digital*

For all businesses entering China (value-added red meat businesses and otherwise), there are clear trends within the Chinese market towards mobile and digital and the integration of new technologies that will benefit consumers experience with digital platforms. This can coincide with food trends placing greater emphasis on the origin, safety and 'story' behind the food – particularly given the strong reputation Australian food and red meat producers hold within China.

▪ *Product Diversification*

As the Chinese market becomes more diversified and contemporary, this greater emphasis for product diversification and new and interesting combinations – that we have experienced in Australia – will shape the future efforts of food manufacturers not only seeking to enter the Chinese market, but to continuously grow market share.

▪ *Story of Origin*

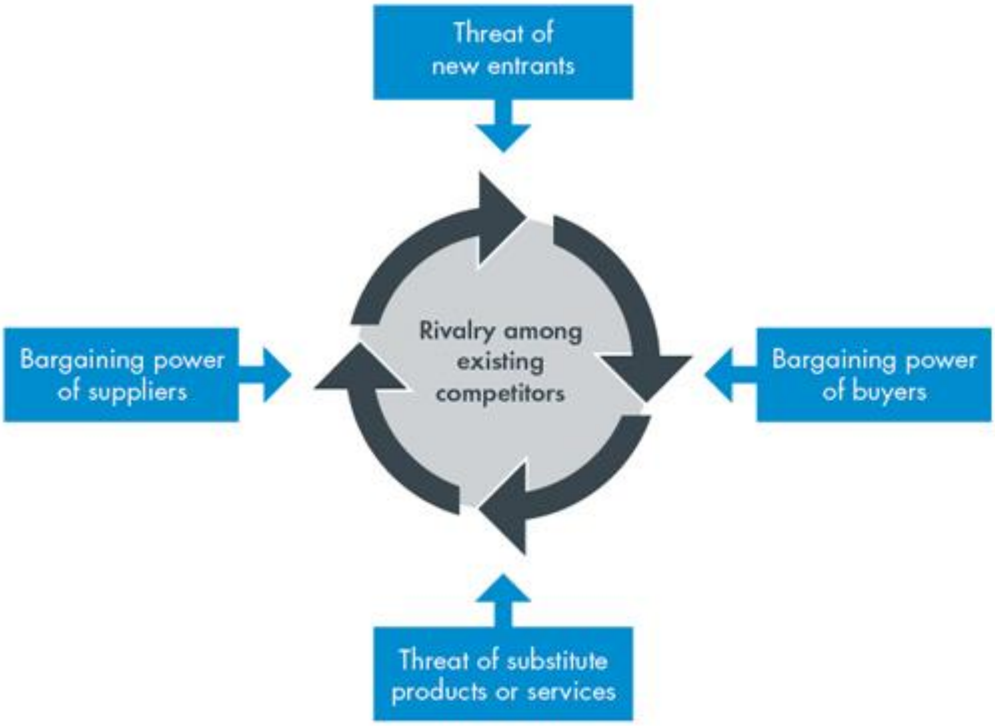
With an emergence and ongoing emphasis on the origin of food, and its relevant safety, quality and differentiating features, value-added red meat producers need to tell the story of their meat and its origin. This shifts value-added red meat producers from marketing not only on functional aspects including food quality and safety, but also attempting to trigger some emotional responses from consumers who not only trust the brand but resonate with it.

9.
Industry Competitive Forces

In order to evaluate the Industry Competitive Forces, the application of two fundamental theories and concepts will be applied. Firstly, Porter's Five Forces Analysis will provide an oversight of the Value-Added Beef and Lamb industry competitors in the Chinese landscape, whilst analysis of key success factors will be drawn from this analysis to provide a fundamental and conceptual evaluation of competitive industry factors that will determine the success of Australian value-added beef and lamb producers when exporting to China.

Porter's Five Forces Analysis

Porter's Five Forces Analysis



Overall industry competitiveness for value-added beef and lamb exporters into China has been evaluated as medium, a level of competitiveness that is predicted to remain stable over the medium term.

▪ *Bargaining Power of Suppliers – Low*

The Bargaining Power of Suppliers, also described as the market of inputs, is concerned with the value-based forces relating to key inputs and raw materials and has been evaluated to be low.

Within the realm of Australian value-added beef and lamb producers, the range and diversity of inputs required for production are relatively low in number in comparison with many other industries, including sub-industries within food and beverage manufacturing. This small scope of suppliers is effective in reducing the overall costs of production for value-added beef and lamb producers, as the total variable costs associated with manufacturing receivables (including but not limited to, sourcing and product testing costs, freight and transportation costs, supplier management costs and abattoir and related meat processing costs)

Industry reports suggest that the total beef manufacturing capacity in Australia totals 2.07 million tonnes annually, and lamb manufacturing capacity totals 506,239 tonnes annually. Whilst is must be noted that within the spheres of beef and lamb manufacturing, particular specialities and level of product quality are highly variable (and value-added producers must therefore spend time and effort evaluating the specific type or cut of beef and lamb products that will be most suitable for their market and product requirements), the objective beef and lamb production capacity indicates a broad competition base for producers that negates high bargaining powers of suppliers that are most commonly derived from product scarcity and associated pricing structures developed from an imbalance in supply and demand.

▪ *Bargaining Power of Buyers – Low to Medium*

The Bargaining Power of Buyers, also described as the market of outputs, is concerned with the customer's ability to place pressures upon the producer's operations.

With specific relation to Australian made producers of value-added beef and lamb products, buyers exert a low to medium level of power. Due to the high demand for Australian beef and lamb products in China, largely due to customer perceptions in China regarding delicious taste and food safety leading all beef and lamb imports, buyers – most notably referring to supermarkets, food distributors or other large scale food retailers – are not exerting high pressures on Australian food products due to their strong desire to stock the products.

However, there still remains some pressures exerted by buyers, predominantly borne out of economic or regulatory requirements. A major power of importers and distributors relates to the export/import licence required for handling Australian beef and lamb exports. As not all distributors have this authority in China, it means that the competitive landscape for buyers is narrowed. Despite this, strong demand for Australian products is still the overriding factor limiting the power of buyers.

▪ *Threat of New Entrants – Medium - High*

The Threat of New Entrants is concerned with the factors encouraging or discouraging new businesses to compete within the existing industry.

There remains a *Medium - High* threat level of new entrants entering the value-added red meat industry in China with the export bands into China and similar export markets, despite the relative level of preference and protection Australian producers hold within the Chinese market. Other beef and lamb producing nations, including Brazil and the USA, are likely to try and compete with Australian brands in the huge Chinese marketplace, and competition from these nations – as well as a strong shift towards product diversification – is to be expected.

▪ *Threat of Substitute Products or Services – Low to Medium*

The Threat of Substitute Products or Services is concerned with different or new technologies designed to solve the same fundamental or economic need.

▪ *Rivalry Among Existing Competitors – Medium - High*

Rivalry amongst existing non-Chinese (imported products) competitors in the broader sense remains medium-High, with nations such as the USA, Brazil and New Zealand all vying for a large market share within the Chinese export market.

Whilst Porter's Five Forces Analysis effectively manages to digress the challenges and competitive forces influencing market entry, it fails to effectively analyse the defining factors and competitive forces that ultimately determine success or failure within the rivalry of existing competitors. The research and analysis of industry key success factors therefore seeks to further fragment and define the competitive factors that will ensure market success and capitalisation following entrance and launch into the market(s).

Industry Key Success Factors

Prior market research undertaken evaluated industry key or critical success factors amongst a number of directly and indirectly related industries, both in Australia, China and abroad. The identification of these industry key success factors serves as a fundamental guide to the business practices, processes and considerations that must take prominence when strategising entry into the Chinese, or other foreign export markets.

▪ *Effective Product Promotion*

The ability to effectively – both in terms of promotional outcomes and economic considerations – promote products will have a severe impact on a brand's success, particularly in the Chinese market. Due to Australian products being counterfeited this product provides security to the buyer. Promotions as to free app downloads and discounted food products at the beginning will ensure increased market use.

▪ *Access to Key Resources*

Having access to important resources, such as cold storage and logistics, is a major factor in developing a company in this industry. Established and sustainable access to key resources is a critical element at all stages of the supply chain; from the guaranteed supply of key and quality product inputs to access to logistics and distribution channels inclusive. Control over access to key resources securitises production and operations of businesses including output capacities, effectively manages the economies of cost and scale and provides businesses with the opportunity to explore competitive options for all resources that will seek to improve product and service quality whilst simultaneously improving cost structures.

▪ *Undertaking Product Research and Development*

Businesses that undertake product research and development are likely to reduce production costs and develop new products that will seek to capitalise upon emerging market opportunities. It is critical that research is both market-based and internally-based, in order to align organisational objectives and product portfolios to best position the business to leverage off identified market opportunities, both within new and existing markets. With product innovation being a critical determining factor in the long-term success and longevity of a brand, a cycle of continuous product development will constantly seek to make improvements to the current product portfolio, with the potential to effectively balance a portfolio with profit-generating cash cows and reduce the negative impact of 'dogs'.

▪ *Economies of Scale*

Large-scale production and distribution generates cost savings for meat and food processors and manufacturers. Specifically, economies of scale reduce per-unit manufacturing costs due to mass production. Advantages of economies of scale are highly integrated with the implementation of new manufacturing infrastructure and technology, which also seeks to reduce variable product prices and make further reductions to processing times for product outputs.

Through building on prior market research findings, and the research and development initiatives undertaken throughout the course of Milestone 2, two key further success factors have – in the circumstances surrounding The Real Thing's foray into the Chinese market – been identified and evaluated as critical to the success of this project, and The Real Thing's long-term brand sustainability in the export market(s) subject in this report:

▪ *Access to Localised Resources*

Current Chinese import and business laws heavily restrict the operations of foreign owned enterprises operating in the nation. This includes restrictions of import and export of Australian beef and lamb, requiring a licence to be held by a Chinese company (a WOFE is applicable in this situation). Furthermore, access to local industry buyers, manufacturing facilities that have the same high safety requirements as Australian food manufacturing plants and distributors will all have a significant impact on how successful a company can be when attempting to capture the Chinese market.

▪ *Ability to Adapt Sales Processes*

A key difference identified between traditional Australian sales and business development activities, and the sales and development initiatives commonplace in the Chinese market. Whilst Australian sales functions generally follow a more formalised approach, consisting of face-to-face meetings and deals and offers being physically drawn up on paper, the modern-day Chinese sales process takes a more lax and informal approach, with it being common to engage in sales negotiations and buying decisions on social media platforms such as WeChat.

10. Macro-economic Forces

The macro-economic forces concerned with this project largely relate to broader scale political and social influences, which are digressed below. Naturally, macro-economic forces provide both opportunities and threats for the scope of this project and value-added beef and lamb exports into China. Mitigation strategies are necessary to effectively manage the risks, whilst strategic direction and product/service design should seek to maximise and exploit identified opportunities.

Political/Legal

▪ In May 2020 China suspended imports from four large red meat abattoirs, fuelling concern of a campaign by Beijing against Australian producers in response to Prime Minister Scott Morrison's push for an independent coronavirus inquiry.

▪ Political tensions between Australia and China have ratcheted up sharply since the beginning of the coronavirus pandemic, culminating in a warning last year from China's ambassador, Cheng Jingye, that Chinese consumers could choose to boycott Australian products such as beef and wine out of a patriotic sense of duty. Australia pushed for a global independent probe into the origins of COVID-19 at the World Health Assembly.

▪ Trade Minister Simon Birmingham and Agriculture Minister David Littleproud were informed in May that four Australian meat establishments – two Queensland abattoirs owned by Australia's largest meat processor, JBS, as well as Kilcoy Pastoral Company near Brisbane and Northern Co-operative Meat Company at Casino, NSW – had been suspended over labelling and health certificate requirements

▪ China's claims against Australia's dumping of barley, made public on Sunday, are also largely based on technical grounds and have been described as spurious by some trade experts.

▪ Food safety requirements, whilst strict in Australia, are not as strong in China – however it is expected that globally there will be a greater push for improved food safety and reporting requirements. It is recommended that all Australian value-added beef and lamb producers follow all Australian food safety standards, even when processing food in China or elsewhere offshore, in order to ensure the highest food safety standards are being met.

Economic

▪ China's economy is the world's second largest economy by nominal GDP and the world's largest economy by purchasing parity power, according to the IMF.

▪ Until 2015, China was the world's fastest-growing major economy with growth rates averaging 10% over 30 years.

▪ China has free trade agreements with several nations, including ASEAN, Australia, New Zealand, Pakistan, South Korea and Switzerland. These are expected to grow in significance in coming years.

▪ China lost 6.2% of its farmland between 1997 and 2008 according to a report by the United Nations' Food and Agriculture Organisation and the OECD, with local governments preferring more profitable real estate developments. This places strain on domestic food supply in China, a strong correlation with the exceptional rises on food imports in China over the last decade.

Social

▪ By 2050, the world's population could be as high as 9.7billion people. Factoring in changing diets, particularly within developing nations with large populations, and global food output will need to increase by 70% from 2009 levels, according to an FAO estimate.

▪ China has a strong emphasis on education levels and claim over 90% literacy rates in the country. A more educated population correlates with stronger knowledge on food safety and health issues.

▪ By the end of 2015, 56% of China's population lived in urban areas, a dramatic increase from 26% in 1990. The fast pace of urban life has exerted many lifestyle changes amongst the Chinese population, with a rise in convenience products designed to save time a product of this geographic shift.

Technological

▪ China is making major investments in agricultural technologies, setting aside US$3.5 billion to support research on transgenic varieties of rice, wheat, maize and three important domestic animals (pigs, cows and sheep).

▪ Technological advancements in food processing and manufacturing keep seeking to reduce the variable costs of food production and increase economies of scale. Producers must constantly be seeking ways to evolve operations and processes to ensure they are not being left behind by international competitors.

Environmental

▪ The Food and Agriculture Organisation of the United Nations claim that of China’s 122 million hectares of arable land and permanent crops, 19.4% of this land is contaminated. Such high contamination rates present opportunities for nations and businesses exerting strong food safety mechanisms and processes, to supply China with safe, high quality food products.

▪ Australian beef and lamb producers are exposed to the ongoing risks of extreme and adverse weather conditions (including drought) that will affect the quality of produce.