

Final Report

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Preliminary evaluation of red meat in Meal Me (Hot Fridge technology)

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Abstract

Red-meats have held a premium meal occasion position over other protein sources but have struggled to innovate for convenience and for new meal occasions compared to white meats. Increasing the value of secondary cuts beyond mince, burgers and sausage products has been slow, besides a few items like lamb shanks and beef cheeks.

Meal Me Pty Ltd is adapting combination oven cooking to develop a hot cabinet technology for presenting red-meat as a true “grab and go” product range in a way that addresses many of these challenges. Initial trials indicate several days up to several months shelf life at a hot, ready to eat temperature in store could be possible based on microbial loads and eating quality. However, a number of factors need to be considered including where market opportunities exist, what red-meat products are best suited to consumer trends and how they should be presented, as well as the business models that will make this viable for the red meat industry.

Executive Summary

Red-meats have held a premium meal occasion position over other protein sources but have struggled to innovate for convenience and for new meal occasions compared to white meats. The emergence of new food trends in the past 5 years like 'snackification', sous vide and ready meals have provided significant opportunities for red-meat to regain lost market share over other proteins.

However, key challenges in presenting these new products to consumers has limited the type of red-meat products that can be presented, which has reduced the penetration of red meat protein in these markets. Some of these challenges include: increased energy cost to cook-chill, reheat and serve, food waste from markdowns and dumps (which has limited menu ranges), eating quality & tenderness, as well as convenience and affordability.

Meal Me Pty Ltd is adapting combination oven cooking to develop Evereo: a hot cabinet technology for presenting red-meat as a true "grab and go" product range in a way that addresses many of these challenges. The 3 key value propositions presented by this technology are:

- 1) Service Temperature Food Preservation means faster serving and greater food safety
- 2) Turns low-value/quality cuts into a tender & moist cooked product. (benefits red meat over other proteins)
- 3) Longer shelf-life provides a 'better with age' product quality and means less wastage

The capability of Evereo to transform under-utilised secondary meat cuts into an incredible eating experience is truly revolutionary. It has the potential to enable secondary red meat cuts that can compete with chicken and pork on price to become genuine eating alternatives. Therefore, if marketed correctly, this technology could enable secondary cuts to become common foodservice dishes. The benefit this will for the red meat industry will be mapped out in the model with relevant assumptions included. This will include cannibalisation of non-meat sales, chicken sales and pork sales wherever these factors are deemed relevant.

Additional growth for the red meat industry may occur by red meat stealing market share from vegetarian/non-meat-based food products. The ease of preparation and storage will enable some food providers like convenience stores increase their capability to serve hot products. This will naturally result in a greater range of higher-value meat-based products to be served. Red meat cuts that are affordable have the potential to be prominently featured in these dishes, meeting the consumer need for both convenience and affordability.

A high-level assessment of the whole industry was conducted early in the project for all market sales. This included a conservative estimate of increases in red-meat sales in existing channels resulting from the benefits and efficiency gains outlined in earlier in the report. The outcomes are summarised in Figure 1

Figure 15 and are estimated at \$380 million in increased red-meat sales as the potential opportunity.



Figure 1: Initial Projections of Industry-Wide Benefit to Red Meat

As the project progressed, more detailed analysis was undertaken in the cost-benefit analysis model. Three key market segments that Everex will be able to focus their development efforts on in the short term were appointed, including:

1. Restaurants
2. Aged Care
3. Fuel Stations

These markets were chosen due to the strength of the value proposition that the hot fridge presents to each channel, and were thus expected to present the highest overall ROI for both UNOX and the red meat industry.

The summary of benefits that would arise from installing the Evereo system are summarised in Table 1. The increase in red meat sales the industry could expect based on forecasted adoption rates of 25% for restaurants & aged care and 10% for fuel stations (driven by net benefit per customer) is equal to approximately \$150 million. Note that these are conservative estimates and do not include any other food service providers (i.e. cafes, fast food, hotels etc.).

Based on the findings of the cost-benefit analysis model, the value propositions of the hot fridge and the benefit the hot fridge could yield to industry, the technology and application to the red-meat industry could be quite revolutionary.

At a fast glance it could seem that this is just another technology providing solutions to existing commercial foodservice and retail sectors with a slight twist. Hot BBQ chickens in retail outlets probably looked the same 40 years ago. Despite this, they have continually dominated a huge high margin sector of every Australian's food basket.

COST - BENEFIT ANALYSIS OF EVEREO HOT FRIDGE FOR BEEF- TOTAL POTENTIAL BENEFIT							
	Restaurants		Aged Care		Fuel Stations		WHOLE SUPPLY CHAIN
BENEFITS	Benefit per restaurant	Projected total sector benefit	Benefit per facility	Projected total sector benefit	Benefit per fuel station	Projected total sector benefit	Projected total benefit (2025)
Reduction in Food Wastage	\$ 24,686	\$ 135,481,800	\$ 18,706	\$ 12,602,837	\$ 2,287	\$ 1,486,714	\$ 149,571,351
Energy Savings	\$ 3,106	\$ 17,046,285	\$ 3,106	\$ 2,092,641	\$ 6,827	\$ 4,437,576	\$ 23,576,502
Wage Savings	\$ 58,704	\$ 322,182,228	\$ 45,219	\$ 30,466,436	\$ -	\$ -	\$ 352,648,664
Increase in Sales & Customer Value	\$ 18,567	\$ 101,902,500	\$ 130,717	\$ 88,070,606	\$ 30,497	\$ 19,822,850	\$ 209,795,956
Increase in Food Safety	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Decrease in average product cost/kg of meat product	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Increase in Floorspace efficiency	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Decrease in Water Usage	\$ 237	\$ 1,302,120	\$ 237	\$ 159,851	\$ 237	\$ 154,216	\$ 1,616,188
Increase in Value for Red Meat Industry		\$ 138,868,845		\$ 9,499,462		\$ 3,255,903	\$ 151,624,210
Total Gross Benefit	\$ 105,300	\$ 716,783,778	\$ 197,985	\$ 142,891,832	\$ 39,848	\$ 29,157,259	\$ 888,832,870
COSTS	Cost per annum	Total cost	Cost per annum	Total cost	Cost per annum	Total cost	Total cost
Annual Capital & Maintenance Costs (all operating costs considered in CBA formulation)	\$ 5,939	\$ 32,593,933	\$ 5,939	\$ 4,001,305	\$ 5,939	\$ 3,860,257	\$ 40,455,495
Total net \$ benefit	\$ 99,362	\$ 684,189,845	\$ 192,046	\$ 138,890,527	\$ 33,909	\$ 25,297,002	\$ 848,377,375

Table 1: Summary of Business Case Analysis for Three Market Segments

Some innovative business model partnerships coupled with innovative (and versatile) red-meat solutions in strategic sectors of the food chain could create multiple red meat options that parallel the market-leading success of the BBQ chicken. A collaborative exploitation of red-meat business model solutions should be further explored and could increase sales of red meat over chicken and pork.

Ultimately, the value delivered to the red meat industry will depend on the overall industry adoption of the Evereo hot fridge (driven by UNOX), and the success of the red-meat marketing campaign that supports the adoption of red-meat based products as the protein source of choice for the hot fridge.

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1 Introduction

Red-meats have held a premium meal occasion position over other protein sources but have struggled to innovate for convenience and for new meal occasions compared to white meats. Increasing the value of secondary cuts beyond mince, burgers and sausage products has been slow, besides a few items like lamb shanks and beef cheeks.

The emergence of new food trends in the past 5 years like 'snackification', sous vide, the slow cooked food movement and ready meals have provided significant opportunities for red-meat to regain lost market share over other proteins. However, there are challenges in presenting these new products to the consumer, including increased energy cost to cook-chill, reheat and serve in-store, as well as food waste from markdowns and dumps which further limits menu item range. Eating quality and tenderness concerns are also consumer considerations that red-meat has not found solutions for as readily as other proteins. Furthermore, mass production and serving of meals in outlets like aged care facilities requires fast heat up and plate up within tight time windows. This limits the type of red-meat products that can be presented, which reduces the penetration of red meat-based menu items in these markets. The ability to hold value-added red meat products at serving temperatures over an extended period of time (days) would increase their availability, reduce preparation lead time and likely increase their consumption volumes and value.

Meal Me Pty Ltd is adapting combination oven cooking to develop a hot cabinet technology for presenting red-meat as a true "grab and go" product range in a way that addresses many of these challenges. Initial trials indicate 3-month shelf life at a hot, ready-to-eat temperature in store could be possible. However, a number of factors need to be considered prior to commercial implementation, including where market opportunities exist, what red-meat products are best suited to consumer trends and how they should be presented, as well as the business models that will make this viable for the red meat industry.

Fresh uncooked protein has a limited shelf life. The traditional status quo view of fresh food is that extended shelf life implies suspicious unnatural adulteration. However, cured meats, aged cheeses and fermented drinks lock in the flavours and are accepted as higher quality the longer they've aged (to a point). The heating technology Meal Me Pty Ltd have developed has a similar impact on eating quality and extended shelf life. This potential capability to enhance the flavours of slow cooked secondary meat cuts, coupled with the emerging trends of premiumisation of food halls and eating experiences could increase the adoption of value-added red meat products that are more likely to benefit from this technology than white meat proteins.

2 Purpose

This project considered the desirability of the concept to consumers and supply chain stakeholders, the feasibility of increasing the value of red-meat products, and the viability of the proposition to both the red-meat industry and the various supply chain stakeholders.

A portion of the project activities tested the technical feasibility (“Could this be done?”), but the primary focus was the desirability and viability of the business concept (“Should this be done?”).

3 Objectives

The objectives of the project were to:

1. Scope and test value propositions and document the business case that identifies where to play / and how red-meat products can create a competitive advantage in this space.
2. Develop product concepts including specifications for hot fridge settings and meat specifications.
3. Understand consumer/market insights to inform the next stage of business model development.
4. Develop a business model canvas and supporting CBA to support future commercialisation activities.

4 Methodology

The Evereo product is an already established technology and appeared to address many of the red-meat challenges outlined in the introduction. The challenge in this project focused on how the wide range of benefits (in addition to cooking red-meat really well) presented by the ‘hot fridge’ align to address a wider range of industry needs related to red-meat sales.

The project engaged commercial sellers of protein dishes by understanding theirs and their customers’ needs, which provide two perspectives from which we’ve framed the value propositions (consumer perspective & service provider perspective). Through answering these needs, Evereo will create a distinct market-driven competitive advantage and drive increased consumer demand for red-meat proteins from the hot fridge.

The review was guided and assessed against three lenses that are known to effectively solve business problems: feasibility, viability and desirability. David Kelly is the author of these widely used lenses and the founder of IDEO and the Stanford d.school (<https://www.ideo.com/pages/design-thinking>). If each of the lenses are thoroughly addressed a company will successfully commercialise innovations.



Figure 2. Innovation design lenses.

Value Proposition Scoping - List assumptions to frame what problems can be solved, considering what market, usage and occasion opportunities exist for the red meat - hot fridge concept.

Test Value Propositions - Customer development interviews were undertaken across different channels to investigate product – market fit desirability.

Feasibility Prototype Trials – Develop prototype products to validate the viability of the concept including design of goat, lamb and beef menu items for different markets such as food Halls, cafés and aged care. Testing of food safety, energy, capacity and consideration of impacts on rancidity odours and flavours were included in the assessment.

Viability – ROI compared to current, what added value to Aust red meat industry ... how many units to get impact in growing demand for Aust red meat industry

5 Technology Review

Recently, low-value cuts such as beef cheeks and briskets have increased in popularity and value as staple inputs to the “Low and slow” cooking movement. However, convenience is in conflict with slow cooking. Although preparation of product can occur well in advance, the management of cooking, reheating, holding and preparing for peak sales periods is very difficult to manage and can result in lost sales. The alternative is to prepare easier to manage raw materials and finished products. Alternatives either use a different protein, or use a low value, pre-prepared red-meat component that is also priced as a low value food option. The disconnect for red-meat between preparation time, high quality products, value for money, and profit for the commercial operator has not been addressed very well. This is a problem worth solving.

5.1 Technology innovation



A UNIQUE PATENTED TECHNOLOGY

Service Temperature Food Preserving is a patented technology that has been designed to preserve food at the temperature at which it is served and eaten. It means that you can cook food, keep it hot **without blast freezing and regenerating it**, and serve it in a few seconds at any time of the day and with zero waiting time for your customers.

Service Temperature Food Preserving **requires less energy** to preserve cooked food than any blast chiller plus freezer process. Numerous **tests carried out in the University of Parma's laboratories**, at the Department of Material Physics, led by Professor Davide Cassi, have demonstrated the patent's benefits. These apply both in terms of microbiological safety and the preservation of food's organoleptic qualities, as well as referring to savings in time and resources.

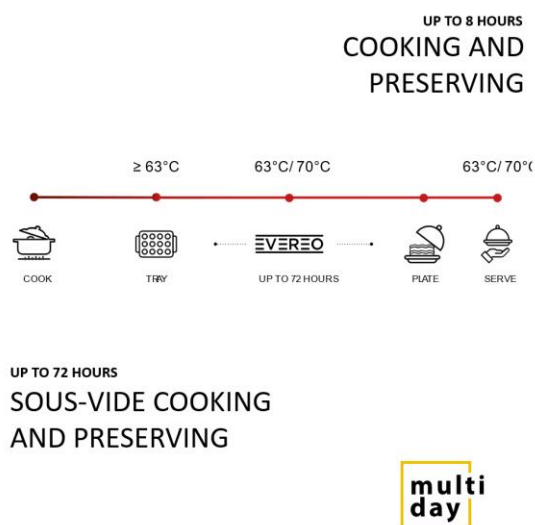
Exever is the combination of the quality of Slow Food with the speed of Fast Food.

The hot fridge has the capacity to keep meat at an even temperature of $68^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$. This means the meat can be stored safely for long periods of time (i.e. multiple days) after it has been cooked. Product tests have shown that the product quality is perceived to improve when the product is stored for longer. This is due to collagen breakdown under sustained heat, causing the meat to effectively 'self-baste'.

5.2 Operational benefits to commercial kitchens

The Evereo hot fridge provides a number of advantages over combi-oven and plate-heat-hold technologies. Users of the hot fridge that were interviewed have said it reduces their electricity bill significantly, quoting monthly energy expense reductions of approximately \$400 for smaller retail outlets (i.e. take-away shops, bakeries).

HOLDING



The design of the technology is also compact, reducing floor size requirements while maintaining product cooking capacity. Factors such as these are key in determining product value and return on investment for potential users of the hot fridge.

A wide range of service and management benefits are also delivered to commercial outlets, which are covered in detail in section 6 *Customer and consumer value propositions*.

5.3 Product quality and safety benefits to consumers

Red meat is primarily perceived to be a luxury meat. Consumers will purchase chicken and pork because they are affordable protein options and often more convenient, but they'll purchase beef or lamb because they desire a pleasurable dining experience. Therefore, if red-meat is considered to be the most desirable meat protein option in terms of eating experience, then developing a range of products that are affordable, convenient and flavourful would generate a significant competitive advantage for the red meat industry.

Lower value secondary meat cuts like brisket, boneless shoulder and shanks have shown an enhancement in eating quality attributes when cooked using the hot fridge. The meat is tender and moist and exhibits self-basting characteristics when stored for longer periods of time in the hot fridge. These products exceed the quality of those prepared through traditional slow cooking. Products tested in a bakery and pie café in Figure 3 had been held for a number of days and was presented to us directly from the oven at serving temperature. Product juiciness, texture and taste were exceptional.



Figure 3: Slow cooked brisket held at serving temperature for 3 days (courtesy of Brett Noye – Bob’s Bakery)

Note the samples in Figure 3 were held unsealed for 3 days. A loose layer of aluminium foil covered the tray in the Evereo and a small canister of water was set in the bottom of the cabinet to maintain a constant humidity.

The products in the following Figure 4 through Figure 12 demonstrate one method of cooking and holding finished meat dishes in ready-to-serve portions. These can be held for a longer time than unsealed products.

Note the texture and tenderness of the oyster blade steak presented in Figure 10 and Figure 11. The gelatinous texture of the thick connective tissue in the centre of the steak had almost no toughness as it was cut through using the back of the spoon (as shown in the photo). These darker red locomotory muscles and associated connective tissue have a greatly elevated eating quality under the Evereo process.

The texture of the meat in Figure 8, Figure 9 and Figure 12 sustained juiciness in the mouth and the moistness was improved relative to traditional slow cooked meats that are tender but dry out after the first few chews.



Figure 4: Product storage in Evereo trays

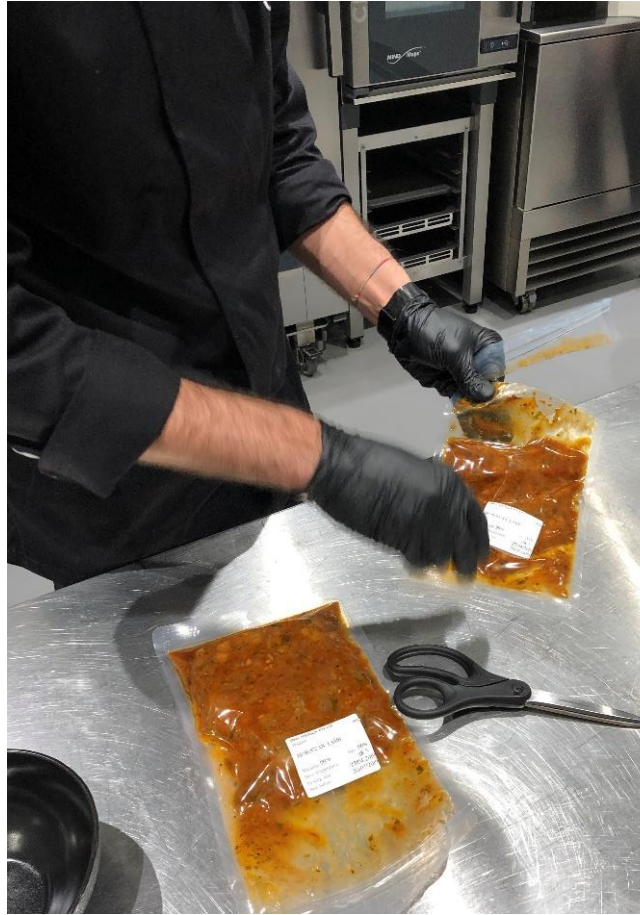


Figure 5: Trial samples stored at serving temperature



Figure 6: Lamb curry



Figure 7: range of wet dishes including high quality meat balls



Figure 8: Moisture maintained in meat fibres, not just in sauce



Figure 9: Muscle structure maintained yet melts in mouth



Figure 10: Heavy collagen almost liquid



Figure 11: Able to be cut with back of spoon



Figure 12: whole cube structure yet extremely tender

This provides a significant opportunity for value-adding secondary cuts of meat. To create a market advantage and increased consumer demand for red-meat proteins, there has to be a compelling value proposition to the end consumer. This will most probably require a wider range of value propositions than just product quality.

The key to exploiting this opportunity for red meat will be identifying markets that want the other technical and operational benefits the hot fridge delivers, in order to maximise adoption of the Evereo hot fridge and thus increase consumer exposure to the high quality red meat products it can create. This is addressed in the next section.

6 Customer and consumer value propositions

6.1 Customer pains and gains

This next stage was to understand customer jobs (what they do that is associated with preparing and consuming protein-based meals), their customer pains (what unfulfilled needs they have) and customer gains (the benefits they look for in doing this)- these are referred to in the right of Figure 13.

The key parameters for identification and segmentation of consumers included:

1. Market Channels
2. Customer Segments
3. Customer Relationships

Each market channel and customer segment within that channel has different customer jobs they need complete. One person may have different jobs to do depending on where they are at a certain time. For example, a business person needs a snack on the go between meetings, but when they are at lunch on the weekend with their family, they may want convenient but high-quality meals for the parents and takeaway for the kids.

The value propositions for each segment are the ways the technology addresses their pains. In the case of the hot fridge, hopefully in ways that increase the sales of red-meat products relative to non-red meat products, by either addressing pains or increasing value (in the left of Figure 13).

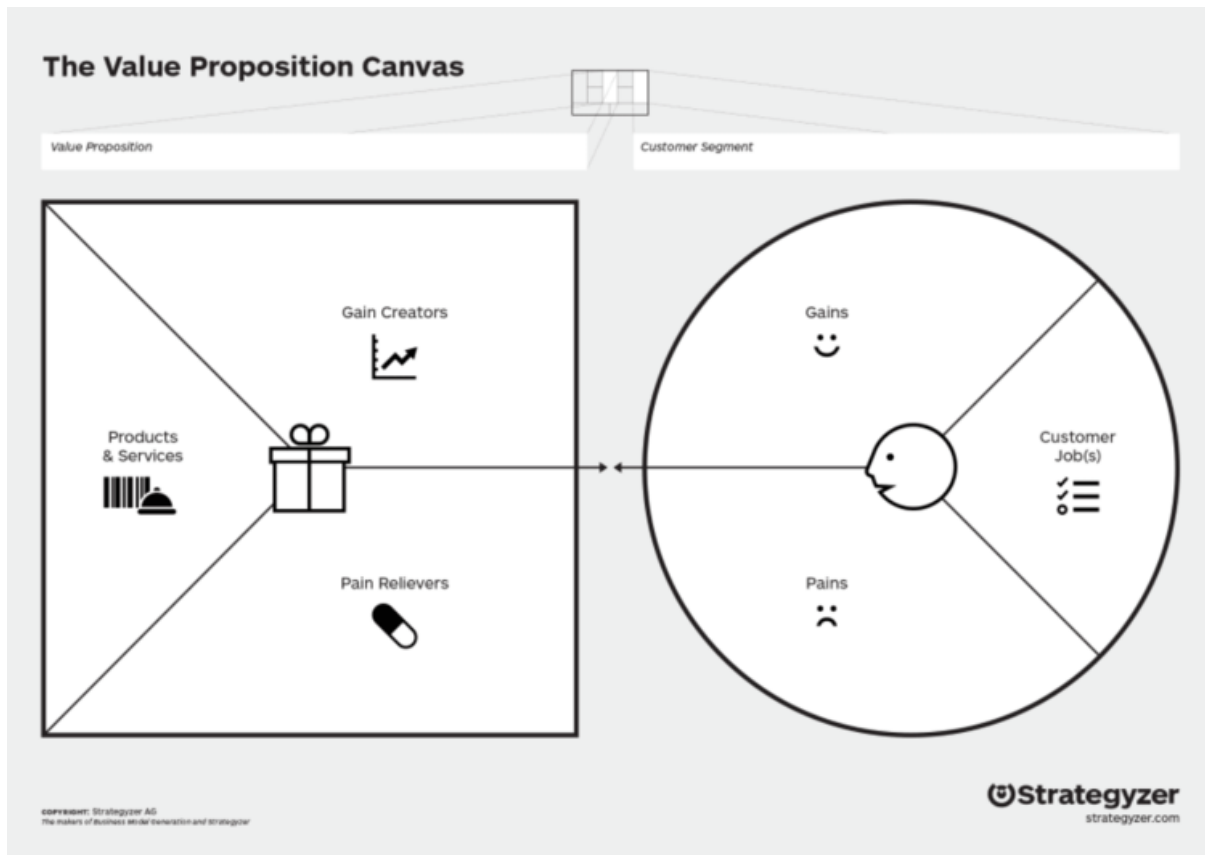


Figure 13: Method to align customers pains and gains with products gain creators and pain relievers

6.1.1 Questions we asked in customer segments?

What is the customer's business strategy?

- Who are they looking to sell to? What are those customers seeking (e.g. convenience, price), and how are they trying to target those product traits?

Is the Evereo product viable for this strategy?

- What's the customer's perception of the hot fridge?
- Do the technology specifications reflect the needs of the particular customer (e.g. size, temperature customisability)?
- What unique value proposition does the hot fridge present that is not already offered by the product mix the customer has access to? For example, could the hot fridge help 7-11 better compete as a convenient stop for dinner pickup (e.g. beef curry, slow cooked lamb shoulder)?
- Is this feasible and viable- would it interfere with their current strategy (market positioning)?

Is the Exever hot fridge convenient for customers?

Obviously, there are the gains in shelf life, the gains in not having to cook the product to order (having it prepared in advance), able to utilise the capabilities for grab and go order etc. But what other pains and gains do customers have to deal with? Some considerations:

- Is it hard to keep track of inventory/integrate with purchasing raw material/ingredients?
- It is difficult to keep track of how long the product has been in the fridge for?
- Do end consumers perceive the hot fridge as able to keep the product fresh? Is this a benefit to communicate or do consumers not want to know the product has been held at serving temperature for 2 days?
- Is eating quality satisfaction lower or higher from the hot fridge compared with a traditional bakery for example? How will this translate add value in a convenience store context?

6.1.2 Who are the potential customers?

- Is there a value proposition for everyday consumers, where consumers actually buy a hot fridge? What are their pains?
- How could they perceive it as another must-have appliance, like an oven or a standard fridge?
- Everyone knows the value of keeping things cold; how can we translate the value of keeping things hot as just as important? And that hard to prepare wet red-meat dishes actually taste better the second and third day, and with a hot fridge, becomes more convenient than a microwave.
- Will Exever need to adapt the product technology to cater to consumer needs (e.g. ease of use, price etc)?
- Could the hot fridge be used on delivery trucks, delivering the product fresh to consumers? Is this a cost efficient business model?

6.2 Pains & Gains- Solving Customer Needs & Fulfilling their Expectations

Section 6.2.1 and 0 provide a summary of some of the key pains and gains faced by consumers & food service providers. The pains represent the unfulfilled customer expectations/needs currently prevalent within different industries, as well as the challenges facing service providers (sellers) in meeting these needs. The gains identified represent the consumer & seller responses to the Evereo hot fridge, which solves the pains identified. The gains that take place through implementation of the Evereo Hot Fridge are substantiated through case study evidence in Figure 17 and Figure 18 in the Appendix.

Key consumer segments (and their key attributes) identified include:

- Businesspeople: seeking convenience & food quality
- Tradies/truckies: seeking convenience & affordability
- Seniors: seeking taste & food quality
- Families (including children): seeking convenience & affordability
- Couples: seeking experience & food quality

6.2.1 Pains identified

Consumer: My purchase is too cold or too hot (reliability, consistency)
Consumer: My purchase took too long to come out (waiting time)
Consumer: The product doesn't taste fresh (product quality)
Consumer: Why does convenient food have to be such low quality and nutrition?
Consumer: This meat is too tough for me to eat
Consumer: This food isn't easy to eat on the go- too messy, not hand-food
Consumer: They're always serving us the same meal for lunch
Consumer: Why do hotels only do club sandwiches on after hours menu?
Consumer: Why can't we get something for the parents and the kids at the same place?
Consumer: Why does good food have to be so expensive?

Seller: We've got too many staff on, and not enough customers (labour requirements)
Seller: We either staff up for food prep and have too many people for the rest of the shift, or we don't and miss sales because we get behind on food prep
Seller: Our margins are too thin- high quality product is all we sell (product value)
Seller: We don't know how much we've sold of each product
Seller: We can't hold our product for long enough and have high wastage; people aren't buying enough of what we've got ready to serve (shelf life)
Seller: We can't have as much variation; different products take too long to prepare, or we over cater and can't sell (product mix)
Seller: Our electricity bill is too much- too many different appliances, that are turned on and off too much
Seller: Our customers wait too long- we have to cook fresh, otherwise the product won't be as good (waiting time and product quality)

6.2.2 Gains identified

Consumer: My purchase is just the right temperature
Consumer: I didn't have to wait long for my product
Consumer: My product is high quality- tender, moist and delicious. Tastes fresh
Consumer: My product has been cooked all the way through, but still flavourful
Consumer: I can't believe how affordable that slow-cooked brisket burger was!
Consumer: My kids love the food as much as I do!
Consumer: It's so affordable to get quality protein now
Consumer: They're not sold out anymore- I don't even have to wait for my product to heat up!

Seller: We've saved on our electricity & water expenses- it lowered our bill by \$400 a month
Seller: We can cook our product ahead of time, and keep it for several days or even weeks if needed; and it still tastes fresh!
Seller: We didn't have to throw out last night's food- it's good until next month!
Seller: We can turn cheaper cuts of meat into delicious high-value products
Seller: We know exactly how many staff we need, and it doesn't change much even during peak hours
Seller: Our staff don't have to know how to cook a cut of meat perfectly; the technology has already done it for them. We can just plate and serve (lower training & wage expenses)
Seller: We get our food to customers sooner, allowing us to serve more tables each night
Seller: It's no longer a hassle to clean our appliances- just add water!
Seller: We're actually starting a 'kitchen-less' restaurant on the side; the hot fridge has made it possible to keep up with our in-house dining

6.3 Where to Play - Value Propositions by Market Channels

The market channel dictates the sales of the hot fridge technology (i.e. market channel adoption/ the number of hot fridge units sold), and the consumers dictate the sustainability of the enterprise (i.e. how much additional red meat sales volume and value the hot fridge generates).

The value propositions based on the pains and gains of the market channels are contained in Section 6.2.1 & 0 as the seller pains and gains. Due to the many parallels in challenges faced across all food service channels in meeting consumer expectations, the seller pains & gains represent the challenges faced by food service providers as an entire industry (rather than a superficial channel-specific analysis).

6.3.1 Market Channels

Key market channels identified and evaluated below include:

- Restaurant (Fine dining and mid-level)
- Dark Kitchens (Online and Home Delivery)
- Hotels
- Aged Care
- Convenience Stores (Including Fuel Stations and Roadhouses)
- Take-away Restaurants

The value of each market channel is dependent upon the size of the channel, the potential market-wide adoption of the hot fridge in each channel and the impact this will have upon the value of red meat. These variables will be affected by the strength of the value proposition the hot fridge presents to each market channel, based on the current pains (*why is this so hard?*) of the channel and the potential gains (*that makes it so much better/easier!*) the hot fridge technology can create.

The objective of the project was to identify the three most likely channels to benefit from the Evereo technology. All market channels were considered at a high level initially. Benefits will translate across all sectors, but the following channels were not evaluated in detail as there was not as significant a value differential between existing services (including: fast food, cafés, supermarkets, catering and food stands/pop-up stores).

6.3.2 Key Value Propositions

From the pains & gains for both consumers and sellers, we've identified 3 key value propositions that the Evereo Hot Fridge presents, which are supported by the key benefits of the technology identified by UNOX. These are summarised in Figure 14.

Key Value Propositions

- 1 Service Temperature Food Preservation means faster & easier serving and greater food safety
- 2 Turns low-value/quality cuts into a tender & moist cooked product. (benefits red meat over other proteins)
- 3 Longer shelf-life provides a 'better with age' product quality and means less wastage

Enables secondary meat cuts to be sold through new channels that don't normally use red-meat

Figure 14: Summary of Key Value Propositions

6.3.3 Revolutionary VP's

The development of the Evereo Hot Fridge is in many ways revolutionary, as it delivers many benefits that were previously considered to be unattainable. Two particularly key revolutionary VPs are:

- Cold chain logistics can now be replaced with hot chain logistics- what impact could this have for red meat- now able to preserve & deliver hot meals & meat products to consumers?
- No cost of cooking, chilling to food safe temp, then transporting to outlet, then reheating – just send it hot and customer holds it hot. There is a significantly lower energy load to maintain a product at a steady temperature than to change the temperature dramatically three times. Additionally, food safety is assured, due to no bacteria forming in a temperature change phase.

This project is focused on quantifying the core value propositions that require the most immediate adoption focus. However, these points certainly merit a deeper analysis, as they could lead to development of new business models and value-adding opportunities due to the increase in supply chain logistical capabilities, as well as the assurance of food safety through minimising temperature change.

6.4 Market channels

6.4.1 Why target Fuel Stations?

An example:

The product comes in the previous afternoon. No prep is required- it's put in the hot fridge. When you come back the following morning, the product's in the fridge, fully cooked, at service temperature. When customers come in and want food to go, they pay \$10 for an already heated comfort-food meal instead of a stale \$5 sandwich. It takes the same time and effort, and generates double the revenue for your business. Additionally, there's no food safety issues and the shelf life is longer than your current product offering, meaning you waste less, spend less and earn more.

6.4.2 Why target Aged Care?

In 2017, there were 3.8 million Australians aged 65 and over (comprising 15% of the total population) —increasing from 319,000 (5%) in 1927 and 1.3 million (9%) in 1977 (Figure 1) [1, 2]. The number and proportion of older Australians is expected to continue to grow. By 2057, it is projected there will be 8.8 million older people in Australia (22% of the population); by 2097, 12.8 million people (25%) will be aged 65 and over [1].

<https://www.playmr.com.au/blog/fmcg-news-top-10-food-trends-for-2019>

"So many companies focus heavily on Millennials, yet the ageing population is not only growing but increasingly affluent. The positioning of many health-related products for the ageing population fall far short of positive, active and energetic lifestyles – which is surely a

goal! The opportunity for nutrient dense, flavourful, suitably portioned health products for an ageing population is huge, and the marketing behind it can surely seize on a clear gap in communications!"

Functional food products with claims and benefits around building healthy bones or joints, boosting the immune system, high protein, anti-inflammatory properties and optimising brain health will do well with these consumers in 2019.

"At a time when record numbers of people are living to be 100 years old, food and drink companies are challenged to address the wide variety of health states of consumers aged 55 and older. The diversity of seniors' needs can be addressed through food and drink for medical purposes as well as products designed for prevention, with formulations that are nutritious, flavourful, and easy to consume." (Mintel)

In 2017, there were 3.8 million Australians aged 65 and over (comprising 15% of the total population) —increasing from 319,000 (5%) in 1927 and 1.3 million (9%) in 1977 (Figure 1) [1, 2]. The number and proportion of older Australians is expected to continue to grow. By 2057, it is projected there will be 8.8 million older people in Australia (22% of the population); by 2097, 12.8 million people (25%) will be aged 65 and over [1].

6.4.3 Why target restaurants?

<https://www.hospitalitymagazine.com.au/40-percent-of-australian-restaurant-food-wasted-study/>

Interim data from a new study conducted by Melbourne university, RMIT has revealed that at least 40 percent of food purchased for stock ends up in the bins of restaurants, cafes and other foodservice businesses around Australia.

Interim data has thus far suggested that the national hospitality sector spends approximately 24 percent of weekly turnover on food purchases (a number similar to ABS figures) and that at least 40 percent of food purchased for stock ends up in the bin. Therefore, there is huge value in the reduction of food wastage alone, as well as all the other key value propositions a restaurant can benefit from: reduced labour requirements, increased process efficiency etc.

Fine-dining and mid-class restaurants usually serve any number of meat-based products. They have traditionally been limited to serving high-quality cuts of meat at high prices, reserving secondary cuts for use in curries and other typically lower-value dishes where meat is not the centre-point or source of flavour. However, the consumer trend of 'nose-to-tail' has seen a rise in demand for lesser-used or lower-value cuts of meat that are cooked in a creative way and sold at a premium price. Meat characteristics such as 'slow-aged' and 'tenderised' are attracting increasing interest as consumers look for new dining experiences. Therefore, the capability of the hot fridge to develop these characteristics for red meat may be of particular value in the restaurant sector, where restaurants can use its capability of turning low value cuts into a tender product to increase their margins while catering to consumer interest in new food experiences.

Potential negatives/challenges

Higher selling price at a restaurant does not necessarily mean industry gets more- either this needs to translate through to higher selling price on processor side, or create higher volume of sales.

Just because the product is reducing costs in the kitchen doesn't mean that beef or lamb will sell more. If the kitchen sells more chicken thighs than beef cheeks, they may use the hot fridge for storing that instead. How can MLA position red meat as the best product for the hot fridge (think about 'hot aged beef', 'matured beef' etc. – beef becoming a premium product through aging in the hot fridge, and then how to get restaurants to communicate that to consumers).

6.4.4 Why target dark kitchens/takeaway?

<https://www.news.com.au/finance/business/retail/australias-shocking-food-delivery-bill-revealed-by-new-research/news-story/169772bd58ae0f3bd923b390c75b5769>

New research from comparison site finder.com.au has found Australians are spending an incredible \$2.6 billion each year on food and drink delivery through companies such as Menulog, UberEats, Deliveroo and Foodora.

The survey found around one-third of adults living in capital cities are food delivery users, with online food delivery services now worth 12 per cent of sales of the lucrative \$44.1 billion cafe, restaurant and takeaway food services industry.

It hasn't taken long for the addiction to take hold, with takeaway food sales growing by a staggering 18 per cent in just three years according to the Australian Bureau of Statistics, compared to a 15 per cent growth in the same period for clothing and footwear, and a 10 per cent jump for supermarket and grocery spends.

The research found the average food order was \$37.50, with a yearly average food delivery spend of \$1590.

Potential negatives/challenges

Takeaway food has typically been associated with trying new, exciting products or going for comfortable foods like curries, hamburgers etc. From MLA's perspective, how could value-added red meat products become a dominant meat in this sector by becoming new/exciting? (It's unlikely that it will challenge pizza, curries, burgers etc. But it could become a more frequently used ingredient in these offerings as well e.g. pulled beef burgers, beef masamman curry etc.)

6.4.5 Why target Hotels?

Many hotels have room service or a ground level café/restaurant, but for the majority of hotels, this is only a small revenue generator for them, largely due to the fact that food is cheaper and higher quality at other venues. However, the convenience hotels can offer based on room delivery at all hours of the night is a key point of difference that is often by itself sufficient to attract late night travellers. By coupling this with flavourful and affordable food that is produced cost-efficiently and delivered quickly, hotels can offer customers an improved value proposition that positions the hotel as a genuine dining/convenient alternative to other food destinations en-route to the hotel.

Potential negatives/challenges

How often to businesspeople eat at hotels? How can we get customer acquisition and then focus on customer retention by the superior product offering at hotels? Maybe work with hotels to introduce lower menu prices to encourage initial product trial (which could even be viable long term through reduced costs), and then raise prices once sales have grown.

7 Cost-benefit analysis

The technology was applied to red-meat value propositions outlined earlier in the report. A quantitative analysis of market sizes and ROI for potential hot fridge users was then developed, with the goal of quantifying the value the key value propositions present to the market. This involved selection of key market channels (based on financial opportunity), which fed into the potential benefit for red meat industry (seen in Table 2 as 'Increase in Value for Red Meat Industry').

The modelling was developed with interaction from some end users to capture their current cost and pricing structures. Substantial background research was conducted to describe the size and segmentation of each market sector, and cost drivers within each sector including input costs.

7.1 Benefit to industry

A high-level assessment of the whole industry was conducted earlier in the project for all market sectors. This included a conservative estimate of increases in red-meat sales in existing channels resulting from the benefits and efficiency gains outlined in earlier in the report.

Figure 15 illustrates an estimate of \$380 million in increased red-meat sales as the potential opportunity for the red meat industry.



Figure 15: Preliminary assessment of whole industry opportunity

As the project progressed, more detailed analysis was undertaken in the cost-benefit model . Three key market segments that UNOX will be able to focus development efforts on in the short term were selected, including:

1. Restaurants
2. Aged Care
3. Fuel Stations

The summary of benefits that would arise from installing the Evereo system are summarised in Table 2. The increase in red meat sales the industry could expect based on forecasted adoption rates of 25% for restaurants & aged care and 10% for fuel stations (driven by net benefit per customer) is equal to approximately \$150 million. Note that these are conservative estimates and do not include any other food service providers (i.e. cafes, fast food, hotels etc.).

Table 2: Summary of business case analysis for three key market segments

COST - BENEFIT ANALYSIS OF EVEREO HOT FRIDGE FOR BEEF- TOTAL POTENTIAL BENEFIT							
	Restaurants		Aged Care		Fuel Stations		WHOLE SUPPLY CHAIN
BENEFITS	Benefit per restaurant	Projected total sector benefit	Benefit per facility	Projected total sector benefit	Benefit per fuel station	Projected total sector benefit	Projected total benefit (2025)
Reduction in Food Wastage	\$ 24,686	\$ 135,481,800	\$ 18,706	\$ 12,602,837	\$ 2,287	\$ 1,486,714	\$ 149,571,351
Energy Savings	\$ 3,106	\$ 17,046,285	\$ 3,106	\$ 2,092,641	\$ 6,827	\$ 4,437,576	\$ 23,576,502
Wage Savings	\$ 58,704	\$ 322,182,228	\$ 45,219	\$ 30,466,436	\$ -	\$ -	\$ 352,648,664
Increase in Sales & Customer Value	\$ 18,567	\$ 101,902,500	\$ 130,717	\$ 88,070,606	\$ 30,497	\$ 19,822,850	\$ 209,795,956
Increase in Food Safety	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Decrease in average product cost/kg of meat product	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Increase in Floorspace efficiency	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Decrease in Water Usage	\$ 237	\$ 1,302,120	\$ 237	\$ 159,851	\$ 237	\$ 154,216	\$ 1,616,188
Increase in Value for Red Meat Industry		\$ 138,868,845		\$ 9,499,462		\$ 3,255,903	\$ 151,624,210
Total Gross Benefit	\$ 105,300	\$ 716,783,778	\$ 197,985	\$ 142,891,832	\$ 39,848	\$ 29,157,259	\$ 888,832,870
COSTS	Cost per annum	Total cost	Cost per annum	Total cost	Cost per annum	Total cost	Total cost
Annual Capital & Maintenance Costs (all operating costs considered in CBA formulation)	\$ 5,939	\$ 32,593,933	\$ 5,939	\$ 4,001,305	\$ 5,939	\$ 3,860,257	\$ 40,455,495
Total net \$ benefit	\$ 99,362	\$ 684,189,845	\$ 192,046	\$ 138,890,527	\$ 33,909	\$ 25,297,002	\$ 848,377,375

7.2 Benefits to commercial outlets

The commercial sector stakeholders are partners to the red-meat industry. If their job of building more suitable red-meat dishes is made easier and more cost effective, the result is a higher volume of red-meat dishes provided to the general consumer (based on a supply-driven mentality). The benefits summarised in the Table 2 provide a very healthy return on investment for adopters of the system. As a sanity check, companies interviewed during the project that have adopted the technology and know their business' financial operations support this magnitude of benefit savings. Detailed assumptions are included in Section 12 Appendix. However, despite significant ROI available, there are other challenges in gaining substantial commercial adoption addressed in Section 9 *Communication and adoption*.

Key benefit drivers

The following summary of benefit calculations is included here. A more detailed analysis is included in the appendix 13.

- Labour savings = Reduced number of personnel * wages
- Wastage savings = Current wastage – (relevant wastage material for hot fridge * assumed wastage saving rate)
- Energy savings = Current energy for appliances not needed when hot fridge used – energy used by hot fridge * assumed usage hours
- Product value increase = (expected future product selling price – expected future product purchase price) - (current product selling price – current product purchase price) (based on average expected % value increase consumers perceive and % value increase they are willing to pay)
- Product sales volume increase = expected future sales (for channel) – current sales (for channel) (based on % of consumers wanting better meat cuts)

7.3 Assumed adoption rates

Based on the basic commercial trade-offs of the system (price, capability, equipment quality, current brand awareness and market penetration), a maximum system adoption rate of 25% is estimated as a reasonable average across the market segments in the next five years. However, smaller companies in each market sector will have a smaller benefit and ROI compared with larger, higher volume/higher cost operations. A more detailed adoption rate was applied using a tiered approach based on increasing ROI as company size increases in each market segment.

Benefit from Restaurant Sector			
Annual Gross Benefit per Restaurant		Adoption Rate	No. of Restaurants
From	To		
\$ 5,000	\$ 15,000	5%	1,098
\$ 15,000	\$ 40,000	10%	2,195
\$ 40,000	\$ 75,000	15%	3,293
\$ 75,000	\$ 100,000	20%	4,391
\$ 100,000		25%	5,488

Figure 16: Impact of average annual gross benefit from Evereo on assumed adoption rates

The Business Model Canvas

Designed for: MLA

Designed by: Greenleaf Enterprises

Date:

Version: Initial

Key Partners



Backing by MLA- by improving the perceived value of traditionally lower quality meat cuts (i.e. beef cheeks), Exever are potentially generating industry value through increased sales volume or improved perception of red meat. Exever can in turn gain from the exposure MLA can provide through a partnership.

Alliances with industry authorities (e.g. Aged Care Industry Association- actually an Australian group) who back the technology for value it delivers the relevant consumers (e.g. improving tenderness and flavour of affordable cuts- ideal for seniors). *(The ACIA vision is to provide **choice and wellbeing** for older Australians- this technology can help deliver that)*

Alliances with competitors- is this standalone technology, or can it be supported by an indirect competitor?

High-profile restaurants or chefs: could be great for marketing campaigns

Key Activities



For Exever:

- Selling management- maximising adoption & industry awareness
- Marketing- how to sell and where to communicate
- Development- maintain tech evolution momentum

For MLA:

- VP for red meat- how to communicate and market the benefits of red meat to hot fridge users and consumers

Key Resources



For Exever:

- o **The UNOX brand**, copyrights, and patents of products to reduce competition
- o **Human resources-** connection to buyers, sales force, management, other employees
- o **Physical resources-** manufacturing facilities, distribution capabilities
- o **Financial resources-** capital to fund R&D and other business innovation strategies

Value Propositions



Key Value Propositions

1. Turns low-value/quality cuts into a tender, moist cooked product
2. Longer shelf-life & sustained product quality means less wastage; no need for a cook

VP Channel 1:

- o Expand product mix, improve delivery time, reduce labour requirements, minimise wastage, improved product quality & reliability

VP Channel 2:

- o Reduce labour requirements, improved product offering, improved value per consumer, improved consumer satisfaction

VP Channel 3:

- o Reduce labour, minimise wastage, improve perceived value of secondary cuts = higher value for same cut, reliability of order = consumer satisfaction

Customer Relationships



Acquiring, Retaining & Increasing Customer Value:

- o Positive ROI for hot fridge buyers
- o Positive eating experience for consumers
- o Other service possibilities- hot fridge capability for self or automated service
- o Building communities around eating experiences?

Channels



Channels with highest value & their customer segment focus

1. Online dark kitchen, home delivery & take-away (all consumers- family focus)
2. Hotels, aged care & roadhouses (mainly businesspeople)
3. Fine dining & mid-restaurant (couples, businesspeople & families)

Customer Segments



Consumers & their desired food characteristics

1. Businesspeople- convenience and easy eating
2. Tradies/truckies- taste, large portions, affordability and easy eating
3. Seniors- easy eating and taste
4. Children- taste and exciting familiarity
5. Families- affordability and convenience
6. Couples- nice dining experience

Cost Structure



For Exever:

- Typical fixed and variable (e.g. wages, electricity, production expenses etc.)
- Value-driven or cost-driven- focused on generating premium value (sparing no expense) or focused on minimising costs wherever possible
- Economies of scale- output expanding generates cost advantages
- Economies of scope- larger scope of operation (e.g. channels supporting multiple products) generates cost advantages

Revenue Streams



For Exever:

- Hot Fridge purchases & purchase of parts to maintain hot fridge functioning
- Any other associated revenues (e.g. cost of app to remotely control hot fridge etc.)

For Hot Fridge Buyers:

- Purchases of product that the Hot Fridge is directly involved in the cooking and the storing of- increased value from same or lower quality cuts of meat.
- Much potential for cost reduction = turning higher % of revenue into profit



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9 Communication and adoption

9.1 Red-meat industry value proposition

MLA is looking to double the value of the red meat industry by 2030. Development of the hot chook case in the retail industry is a great example of how the poultry industry has done this in part.

Hot chicken sales beat red meat hands down for lunch sales. Is this because of convenience and consistent eating quality? Could the hot fridge improve the convenience of red meat products to compete with the hot chicken on both value and convenience? The products tasted from the Evereo system after 2 days preservation at serving temperature were far superior and more complex in their flavour profiles than hot BBQ chickens. Therefore, gaining market share at the expense of other proteins is possible, but requires an innovative approach to business model development in order to succeed.

The capability of Evereo to transform under-utilised secondary meat cuts into an incredible eating experience is truly revolutionary. It has the potential to enable secondary red meat cuts that can compete with chicken and pork on price to become genuine eating alternatives. Therefore, if marketed correctly, this technology could enable secondary cuts to become common foodservice dishes. The benefit this will have for the red meat industry will be mapped out in the model with relevant assumptions included. This will include cannibalisation of non-meat sales, chicken sales and pork sales wherever these factors are deemed relevant.

Additional growth for the red meat industry may occur by red meat stealing market share from vegetarian/non-meat-based food products. The ease of preparation and storage will enable some food providers like convenience stores to increase their capability to serve hot products. This will naturally result in a greater range of higher-value meat-based products to be served. Secondary red meat cuts that are affordable have the potential to be prominently featured in these dishes, meeting the consumer need for both convenience and affordability.

9.2 Communication and education

The technology manages the interaction of time, temperature, food safety and eating quality in ways that are not currently replicated. Because food handling processes with Evereo are outside traditional food handling and preparation paradigms, adoption requires a clear communication strategy to support the value propositions for red-meat. In particular, education around the safety and associated benefits of **Service Temperature Food Processing (STFP)** is required in the market. This is about making people feel aware and helping them not to feel like they are a first guinea pig for testing of the technology- this is one of the largest problems identified by UNOX when conducting in-market testing and commencing commercial operation.

Changing the perspective of chefs – is another big challenge. Businesspeople get it; make more money, reduce labour requirement etc. However, chefs are more change resistant- they aren't always willing to make the changes to their cooking processes that are necessary to gain the benefits of the new technology.

9.3 Collaborative partners

The value (in terms of ROI) for the red meat industry as a result of this project will be dependent upon the commercial success of the Evereo technology as well as how it is marketed. Based on the product sampling that was undertaken, the Evereo technology does have a positive effect on the eating quality of beef and lamb. However, it has a similarly positive effect on the eating quality of pork. While chicken was not tested, the UNOX team confirmed that chicken responds with similar results. However, the UNOX team affirms that the greater outcome differentials in beef such as cooking time, prime and secondary cut prices and lack of convenience will generate greater gains.

Therefore, in order for the commercialisation and widespread adoption of Evereo technology to have a positive ROI for the red meat industry, the following initiatives would help realise the differential benefits beef has over pork and chicken:

1. Marketing of the technology & red meat: MLA and UNOX could work collaboratively to develop a product plan customised to the different industry and consumer segments. This would have the potential for possible integration into the MealMe business. This will help maximise food industry exposure to the potential the technology has for red meat, remembering that red-meat products respond more favourably than white meats, and the pricing differential between secondary red-meat cuts enables them to be elevated in quality and value and presented in a more convenient way, making those cuts more accessible to everyday meal occasions.
2. Other marketing material (i.e. brochures) could be developed to suggest potential use for the Evereo with red meat. This could be included in the sale of Evereo units as a costing tool to help companies with meal costings.
3. Development of MLA marketing material may then be undertaken, depending on the situational opportunity for this material (i.e. what industry, what opportunity and what feasibility). From this marketing, opportunities may arise for workshops with key industry players that will promote the chemistry between the Evereo hot fridge and the eating quality of red meat (with an emphasis on value-adding secondary cuts).

9.3.1 Rapid education and adoption strategies

It would greatly support the awareness of STFP and adoption for red-meat if a large, high consumer profile company took on Evereo technology, coupled with a range of red-meat products. A company like 7-11 in the convenience segment, a retailer like Coles in the hot box section or a restaurant chain like Coffee Club could be a valuable partner in increasing the awareness and adoption of secondary meat cuts in connection to the Evereo hot fridge.

What will they want to know?

- How cost efficient is it (energy, ROI compared to current appliances, product life)?
- Can it be customised to fit certain spaces or consumer needs (e.g. size, number of products stored etc.)?
- How effective is it? (How can we quantify this, because you can't quantify flavour. We could have independent testers try product at different storage lives and see how they score them)

- What extras do they want to see?
- Talk about its capabilities and why it's revolutionary in terms of design and function.
- What would they use it for? What cuts of meat, for what intended consumer use and in what way (in terms of preparation, storage etc.)?

9.4 Business model drivers

Patented processes - are much stronger patents than a technology patent. Exever owns the patents and licenses them to UNOX to make Evereo the cooking equipment.

Driving product adoption – through MealMe as the brand that sells prepared food to the commercial sector using the technology is enabling companies to take on the concept faster through a product supply arrangement.

Making technology adoption easy - MealMe as a food provider will take the Evereo hot fridge from UNOX Australia and will allow food providers to use the hot fridge at no capital cost, for as long as the food provider has contracted MealMe products.

Extending the impact of the technology - Other prepared food producers could be licensed to us the patented technology to sell Exever certified food products.

Additional commercial solutions – such as Multiday makes Evereo available to restaurants.

9.5 Picking winning partners – Everex capacity

There is always a potential risk in ensuring research and development dollars are commercialised to drive return on investment for the meat industry. Strong, well managed companies increase the likelihood of successful commercial execution. From the observations made of the company during the project, UNOX has demonstrated they are a leading edge, well established business. There is demonstrated capability to execute well on commercial application of engineering design. Additionally, their product quality and commercial pricing are more competitive than other commercial equipment providers.

Operational management, stock control and warehousing support the company's observable attention to detail in all aspects of business management.

Business model innovation via the MealMe food distribution concept show a combination of red-meat product development innovation and a combination of route to market strategies that are likely to drive wide adoption.

Support from Meat and Livestock Australia in the form of recipe development, joint marketing of red-meat meal concepts (via Evereo technology), endorsement of Evereo sponsored advertising in trade magazines and similar associated activities are not a big cost for MLA, but do help end customers to adopt the technology for increased value adding of secondary red-meat cuts.

10 Key Recommendation

The technology and application to the red-meat could be quite revolutionary.

At a fast glance it could seem that this is just another technology providing solutions to existing commercial foodservice and retail sectors with a slight twist. Hot BBQ chickens in retail outlets probably looked the same 40 years ago. Despite this, they have continually dominated a huge high margin sector of every Australians food basket.

Some innovative business model partnerships coupled with innovative (and versatile) red-meat solutions in strategic sectors of the food chain could create multiple red meat options that parallel the market-leading success of the BBQ chicken. A collaborative exploitation of red-meat business model solutions should be further explored and could increase sales of red meat over chicken and pork.

Ultimately, the value delivered to the red meat industry will depend on the overall industry adoption of the Evereo hot fridge (driven by UNOX), and the success of the red-meat marketing campaign that supports the adoption of red-meat based products as the protein source of choice for the Evereo hot fridge.

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12 Appendix

12.1 Appendix- Detailed Modelling

a) Reduction in Food Waste - Restaurants		Benefit per Restaurant
Assumptions Shelf life used to better track & manage inventory		
Current Food Waste Levels		
Current Cost of Restaurant Food Purchases		\$ 205,715
% of Food ending as Food Waste	40%	
Cost of food wastage		\$ 82,286
Cost of Food Waste per restaurant		\$ 82,286
Future Food Waste Levels		
Assumed Reduction in Food Waste	30%	
Future product Waste per restaurant (\$)		\$ 57,600
Cost of Future Food Waste per restaurant		\$ 57,600
Gross benefit per restaurant (annual)		\$ 24,686

b) Energy Savings		Benefit per Restaurant
Assumptions Use of hot fridge replaces current appliances		
Current Electricity Usage		
Current HF-related energy usage per annum (kW)		11,584
Cost per kW		\$ 0.33
Cost of Current HF-related electricity usage per restaurant		\$ 3,823
Future Food Waste Levels		
Total HF electricity usage-annual (kWh)		2,172
Cost per kW		\$ 0.33
(Based on 2 EVEREO Hot Fridges)		
Cost of Future HF electricity usage per restaurant		\$ 717
Average gross benefit per restaurant (annual)		\$ 3,106

c) Labour/Wage Savings		Benefit per Restaurant
Assumptions Use of hot fridge saves time & reduces labour		
Current Wage Expenses		
Current Wage Expenses as % of revenue		42%
Average restaurant revenue		\$ 589,441
Total Wage Expenses per Restaurant		\$ 248,744
Future Food Wastage Levels		
Average wage of serving staff		\$ 58,704
(Assumed reduction of 1 serving staff- UNOX case study)		1
Total Future Wage Expenses per restaurant		\$ 190,040
Gross benefit per restaurant (annual)		\$ 58,704

d) Increase in Sales		Benefit per Restaurant
Assumptions Use of hot fridge increases demand for hot meat Use of hot fridge saves time & increases sales		
Current Sales Level		
Average revenue per restaurant		\$ 589,441
Average number of orders (annual)		14,736
Average customer value		\$ 40
% of order for centre of the plate		60%
Total Centre of Plate sales per restaurant		\$ 353,665
Future sales level		
% increase in efficiency of food preparation		25%
% efficiency translating to new sales		70%
% of a week where slow table turnover reduces sales		30%
Average number of orders (annual)		15510
Future total sales per restaurant		\$ 372,232
Gross benefit per restaurant (annual)		\$ 18,567

h) Decrease in Water Usage		Benefit per Restaurant
Assumptions		
Current water usage		
Current annual water usage (kL)		\$ 8,014
Current cost per kL of water		\$ 2.52
Current water usage for appliances relevant to HF (kL)		662
Current cost of water usage		\$ 20,226
Future Water Usage		
Total UNOX water usage (kL)		568
Future water usage (kL)		\$ 7,920
(Based on 2 EVEREO Hot Fridges)		
Future Cost of Water Usage		\$ 19,989
Gross benefit per restaurant (annual)		\$ 237

Model drivers - Restaurant Sector				
Variables	Values	Drivers of value	Input Variables	Source/assumptions
Restaurant revenue	589,441	Product Wastage as % of total product	40%	RMIT study
Annual electricity usage (kWh)	24,311	Assumed no. of days per year HF-related appliances are operational	362	3 days provided for maintenance
Cost per kWh of electricity	\$ 0.33	Assumed no. of days per year HF is operational	362	3 days provided for maintenance
Average orders annual	14,736	% increase in process efficiency	25%	UNOX case study
No. of food illness claims (annual)	0	% efficiency translating to new sales	70%	UNOX case study
% food illness claims successful	0	% Reduction in food wastage	30%	UNOX case study
Average value of food illness claims	\$ -	% decrease in food illness claims	n/a	
Average portion size of meat (kg)	0.2	% decrease in successful food illness claims	n/a	
Average restaurant floorspace (m²)	73	% of meals served using meat	n/a	
Average restaurant rent (\$/annum) *	\$ 20,669.38	% Increase in sales of meat dishes	n/a	
Average size of restaurant kitchen (m²)	27			
Current annual water usage (kL)	8,014			
Current cost per kL of water	\$ 2.52			

a) Reduction in Food Wastage		Benefit per Aged Care Facility	
<u>Assumptions</u>		Shelf life used to better track & use inventory	
Current Food Wastage Levels			
Current Cost of Aged Care Food Purchases		\$	155,879
% of Food ending as Food Wastage			40%
Cost of food wastage		\$	62,352
Cost of Food Wastage per facility		\$	62,352
Future Food Wastage Levels			
Assumed Reduction in Food Wastage (UNOX case study)			30%
Future product Wastage per restaurant (\$)		\$	43,646
Cost of Future Food Wastage per facility		\$	43,646
Gross benefit per facility (annual)		\$	18,706

b) Energy Savings		Benefit per Aged Care Facility	
<u>Assumptions</u>		Use of hot fridge replaces current appliances	
Current Electricity Usage			
Current HF-related energy usage per annum (kW)		11584	
Cost per kW		\$	0.33
Cost of Current HF-related electricity usage per facility		\$	3,823
Future Food Wastage Levels			
Total HF electricity usage-annual (kWh)		2172	
Cost per kW		\$	0.33
(Based on 2 EVEREO Hot Fridges)			
Cost of Future HF electricity usage per facility		\$	717
Gross benefit per facility (annual)		\$	3,106

c) Wage Savings		Benefit per Aged Care Facility
Assumptions Use of hot fridge saves time & reduces labour		
Current Wage Expenses		
Average no. of staff currently employed for food prep & cook		4
Average wage of food prep staff (\$/annum)		\$ 45,219
<i>(Wage assumes 5 day week, 8 hr workday, 52 weeks per year)</i>		
Total food-related Wage Expenses per facility		\$ 180,877
Future Food Wastage Levels		
Average number of food prep staff employed in future		3
Average wage of staff (\$/annum)- future		\$ 45,219
<i>(Assumed reduction of 1 serving staff- UNOX case study)</i>		
Total Future Wage Expenses per facility		\$ 135,658
Gross benefit per facility (annual)		\$ 45,219

d) Change in Revenue & Cost from Food Service		Benefit per Aged Care Facility
Assumptions Use of hot fridge increases % of meals prepped and served at facility (not out-sourced)		
Current food-related value		
Average food-related revenue per facility- annual		\$ 1,202,226
Average number of meals (annual) per resident		1095
Average number of meals (annual) per facility		76650
Average food-related revenue (i.e. fees) per resident- annual		\$ 17,175
Average value per meal		\$ 15.68
% of meals outsourced		33%
% of meals prepped at facility		67%
Average cost per meal outsourced		\$ 3.27
Average cost per meal prepped at facility		\$ 1.41
Number of meals prepped at facility		51100
Total food-related cost per facility (annual)		\$ 155,879
Total food-related revenue per facility (annual)*		\$ 1,202,226
Future food-related value		
% increase in number of meals prepped at facility		25%
% increase in food-related fees per resident (\$/annum)		10%
% of future meals prepped at facility		83%
Number of meals prepped at facility		63875
Future food-related fees per resident (\$/annum)		\$ 18,892
Future food-related fees per facility (\$/annum)		\$ 1,322,449
Average value per meal		\$ 17.25
% Increase in cost per meal outsourced		10%
% Increase in cost per meal prepped at facility		10%
Average cost per meal outsourced		\$ 3.60
Average cost per meal prepped at facility		\$ 1.56
Future food-related cost per facility (annual)		\$ 145,385
Future food-related revenue per facility (annual)		\$ 1,322,449
Gross benefit per facility (annual)		\$ 130,717

Model drivers - Aged Care Sector				
Variables	Values	Drivers of value	Input Variables	Source/assumptions
Food-related revenue per facility	\$ 1,202,226	Product Wastage as % of total product	40%	RMIT Study- assumed same as restaurants
Total annual food-related cost	\$ 155,879	% increase in process efficiency	25%	UNOX case study
Cost per kWh of electricity	\$ 0.33	% efficiency translating to new sales	70%	UNOX case study
Average serving size of meat (kg)	0	% Reduction in food wastage	30%	UNOX case study
Average food-related revenue	\$ 160,000.00	Assumed no. of days per year HF-related appliances are operational	362	3 days provided for maintenance
Average annual meals per resident	1095	Assumed no. of days per year HF is operational	362	3 days provided for maintenance
No. of residents at facility	\$ 70.00	Assumed no. of outsourced meals per resident per day	1	Assumption- 1 meal catered for (i.e. dinner)
% of total food costs for meals prepped at facility	46%	Assumed no. of meals prepped at facility per resident per day	2	Assumption- 2 meals prepped at facility (i.e. breakfast & lunch)
% of total food costs for meals outsourced	54%	% increase in food-related fees per resident (\$/annum)	10%	Assumption- justifiable due to significant increase in food quality- conservative estimate
Cost per meal prepped at facility	\$ 1.41	Increase in cost per meal outsourced	10%	Assumption- less catered meals required- logical catering company will increase costs to cover OH
Cost per meal outsourced	\$ 3.27	Increase in cost per meal prepped at facility	10%	Assumption- to justify increase in food-related fees (and now paying less for catering), aged care uses higher quality ingredients to improve resident satisfaction
Cost per kL of water	\$ 2.52	% of meals served using meat	n/a	
		% Increase in sales of meat dishes	n/a	
		No. of food illness claims (annual)	n/a	
		% food illness claims successful	n/a	
		Average value of food illness claims	n/a	

b) Energy Savings		Benefit per Fuel Station	
Assumptions			
Use of hot fridge replaces current appliances			
Current Electricity Usage			
Total Electricity Usage per fuel station(kWh)		360000	
Cost per kWh		\$	0.33
% of Total Electricity Cost related to Hot Fridge		6%	
Cost of Current HF-related electricity usage per fuel station		\$	7,543.80
Future Food Wastage Levels			
Total HF electricity usage-annual (kWh)		2172	
Cost per kW		\$	0.33
<i>(Based on 2 EVEREO Hot Fridges)</i>			
Cost of Future HF electricity usage per fuel station		\$	717
Gross benefit per fuel station (annual)		\$	6,827
a) Reduction in Food Wastage		Benefit per Fuel Station	
Assumptions			
Shelf life used to better track & use inventory			
Current Food Wastage Levels			
Current Cost of Fuel Station Fresh Food Manufacturing		\$	38,121
% of Food ending as Food Wastage		20%	
Cost of Current Food Wastage per fuel station		\$	7,624
Future Food Wastage Levels			
Assumed Reduction in Food Wastage (UNOX case study)		30%	
Future product Wastage per restaurant (\$)		\$	5,337
Cost of Future Food Wastage per fuel station		\$	5,337
Gross benefit per fuel station (annual)		\$	2,287

c) Labour/Wage Savings		Benefit per Fuel Station	
Assumptions			
Use of hot fridge saves time & reduces labour			
Current Wage Expenses			
Average no. of staff currently employed		2	
Average wage of staff (\$/annum)		\$	40,893
(Wage assumes 5 day week, 8 hr workday, 52 weeks per year)			
Total Wage Expenses per fuel station		\$	81,786
Future Food Wastage Levels			
Average number of staff employed in future		2	
Average wage of staff (\$/annum)- future		\$	40,893
Total Future Wage Expenses per fuel station		\$	81,786
Gross benefit per fuel station (annual)		\$	-

d) Increase in Sales & Customer Value		Benefit per Fuel Station
Ass Use of hot fridge increases demand for & value of fresh food All other purchases remain unaffected		
Current sales Level		
Average value of fresh food purchase		\$ 9578 9.95
Total number of fresh food orders (annual)		
Total fresh food-related revenue per fuel station		\$ 95,302
Future sales level		
% increase in number of purchases		20% 10% 11494 \$ 10.95
% increase in value of purchase		
Average number of purchases (annual)		
Future average value of fresh food purchase		
Future fresh food-related sales per fuel station		\$ 125,799
Gross benefit per fuel station (annual)		\$ 30,497

i) Decrease in Water Usage		Benefit per Fuel Station
Current water usage		
Current cost per kL of water		\$ 662 2.52
Current water usage for appliances relevant to HF (kL)		
Current cost of water usage for HF-related appliances		\$ 1,671
Future water usage		
Total UNOX water usage (kL)		568 \$ 2.52
Current cost per kL of water		
(Based on 2 EVEREO Hot Fridges)		
Future cost of water usage for HF-related appliances		\$ 1,434
Gross benefit per fuel station (annual)		\$ 237

Model drivers - Fuel Station Sector				
Variables	Values	Drivers of value	Input Variables	Source/assumptions
Annual convenience revenue per fuel station	\$ 953,022	% of convenience revenue attributable to fresh food	10%	Conservative estimate- other sales like tobacco, beverages & shelf stable food account for majority
Annual electricity usage (kWh)	360,000	Margin on fresh food products	150%	
% of fuel station electricity for cooking	4%	Product Wastage as % of total product	20%	Assumed to be half that of restaurants- minimal leftovers when preparing
% of fuel station electricity for refrigeration	47%	% increase in process efficiency	25%	UNOX case study
Cost per kWh of electricity	\$ 0.33	% efficiency translating to new sales	70%	UNOX case study
Current cost per kL of water	\$ 2.52	% Reduction in food wastage	30%	UNOX case study
Number of food purchases per year	50,000	Assumed no. of days per year HF-related appliances are operational	362	3 days provided for maintenance
		Assumed no. of hours per day HF is operational	23	1 hr provided for maintenance
		Assumed no. of days per year HF is operational	362	3 days provided for maintenance
		% of refrigeration electricity that will be transferred to hot fridge	5%	Assumed that majority of refrigeration is used for beverages, not food
		Average cost of fresh food purchase	\$ 9.95	Based on average Youfoodz meal cost
		% increase in number of purchases	20%	Based on hot ready meals being more attractive to purchase
		Increase in future average value of fresh food purchase	10%	Based on hot ready meals being more heavily valued by consumers
		% decrease in food illness claims	n/a	
		% decrease in successful food illness claims	n/a	
		% decrease in value of future food illness claims	n/a	
		% of fresh food purchases that include meat	n/a	
		Average portion size of meat (kg)	n/a	
		% increase in meals served using meat	n/a	
		Future average portion size of meat (kg)	n/a	
		No. of food illness claims (annual)	n/a	
		% food illness claims successful	n/a	
		Average value of food illness claims	n/a	

Appendix – Modelling Assumptions and Inputs

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	FOOD SERVICE SECTOR STATISTICS														
2	FoodService Market revenue 2018	79 billion	5.1 CAGR-2018-23	http://www.ausfoodnews.com.au/2018/11/12/five-rising-trends-in-the-australian-foodservice-market.html											
3	COST - BENEFIT ANALYSIS OF EXEVER (FULL MARKET OPPORTUNITY)														
4	No. of places to eat out (30 June 2016)	85,284	http://www.the-drop.com.au/wp-content/uploads/2016/11/EatingOutinAustralia_2017_Respondent-Summary.compressed.pdf												
5	No. of restaurants in Australia	21,953													
6	No. of bars and pubs	6,983													
7	No. of clubs	6,413													
8	No. of cafes	20,503													
9	No. of fast food	29,432													
10		Billion													
11	Total revenue of eating out industry in Australia (30 June 2016)	45.328 billion	45.328	food cost	Meat portion		red meat		increase			actual increase - % of total meat			
12	Fast food establishment revenue	19.96 billion	19.96	0.3	0.3	1.7964	0.3	0.53892	0.1	0.053892	0.03				
13	Café establiashment revenue	7.169 billion	7.169	0.3	0.3	0.64521	0.3	0.193563	0.1	0.0193563	0.03				
14	Club establishment revenue	2.448 billion	2.448	0.3	0.3	0.22032	0.3	0.066096	0.1	0.0066096	0.03				
15	Pubs & bars establishment revenue	2.811 billion	2.811	0.3	0.3	0.25299	0.3	0.075897	0.1	0.0075897	0.03				
16	Restaurants establishment revenue	12.94 billion	12.94	0.3	0.3	1.1646	0.3	0.34938	0.1	0.034938	0.03				
17						4.07952				122,385,600					
18	Average annual revenue per establishment:									116,460,000	Comparison approach				
19	Fast food	\$ 678,173													
20	Café	\$ 349,656													
21	Club	\$ 381,725													
22	Pubs & bars	\$ 438,328													
23	Restaurants	\$ 589,441													
24	AVERAGE TOTAL COMBINED	\$ 531,495													
25															
26	Number of Hotels in Australia	5,095	According to yellow page https://www.yellowpages.com.au/search/listings?clue=Hotels+%26+Accommodation&locationClue=Australia&lat=&lon=&selectedView												
27	No. of accommodation rooms in Australia (2017/18)	281,798	(Hotels, motels and serviced apartments with 10+ rooms)												
28															
29	AGED CARE STATISTICS														
30	Capacity for people in aged care	207,000	https://www.gen-agedcaredata.gov.au/Topics/Services-and-places-in-aged-care												
31	No. of people in aged care	187,000	(Based on average occupancy rate of 90%)												
32	Number of aged care facilities in Australia	2,695													
33	Average beds per aged care facility	77													
34	Total Revenue of Aged Care Sector	\$ 18,000,000,000	https://agedcare.health.gov.au/sites/default/files/documents/12_2016/aged_care_guild_-_enclosure_1_-_deloitte_access_economics												
35	% Aged Care Residential	189,300	people												
36	Aged Care Residential as % of Revenue	\$ 14,800,000,000	82%												
37	Food and Beverage Seives as % of revenue- indirect	18%	\$ 738,000,000												
38	Total Indirect Revenue	\$ 4,100,000,000				food cost	Meat portion		red meat		increase		actual increase - % of total meat		
39	Food Contract cost % of total food cost	54%	For high-care homes- pe	https://www.pc.gov.au	1	0.3	#####	0.3	66420000	0.1	6642000	0.03			
40	Food prepped at facility cost % of total food cost	46%	For high-care homes- per day, per resident												
41	Daily spend on food per resident (excluding supplements)	\$ 6.08	https://www.agedcareguide.com.au/talking-aged-care/quality-of-food-in-aged-care-up-for-discussion-again												
42	Full pension rate (per day)	\$ 66.16	https://www.superguide.com.au/accessing-superannuation/age-pension-rates												
43	Basic Daily Fee for New Residents- Maximum	\$ 56.23	Includes day-to-day livin https://www.agedcareonline.com.au/2015/10/Residential-Aged-Care-Costs-Explained												

[illegible]

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72	RESTURANT / HOSPITALITY SECTOR STATISTICS			
73	Hospitality sector expenditure on food purchases (% of weekly turnover)	24%		https://www.hospitalitymagazine.com.au/40-percent-of-australian-restaurant-food-wasted-study/
74	% of food purchased for stock wasted (spoilage, preparation, customer)	40%		
75	% of weekly turnover wasted due to food wastage	9.600%		
76				
77	Total wastage by restaurants (annually- in tonnes)	250,000		http://wastemanagementreview.com.au/rmit-university-uncovering-secret-life-food-waste/
78	Total wastage per restaurant (annually- in tonnes)	11		
79				
80	Energy consumption in restaurants- % cooking	55%		http://energycheckup.eu/uploads/media/PL_SoA_BarsRestaurants.pdf
81	Electricity consumption in FSR- % cooking	14%		https://ouc.bizenergyadvisor.com/restaurants
82	Average pub combination oven electricity consumption (daily- kWh)	35 kWh	12% of total energy cons	https://academic.oup.com/ijlct/article/11/1/66/2363520
83	Cost per kWh- QLD	\$ 0.28		
84	Cost per kWh- NSW	\$ 0.28		
85	Cost per kWh- VIC	\$ 0.33		
86	Cost per kWh- SA	\$ 0.43		
87	Average full-service restaurant energy usage per sq. foot (annual)	29 kWh		https://www.mge.com/images/PDF/Brochures/business/ManagingEnergyCostsInRestaurants.pdf
88				
89				
90	Average daily water usage- restaurants (litres)	21,955		https://powerhousedynamics.com/resources/white-papers/water-water-everywhere-and-10-ways-restaurant
91	Average annual water usage- restaurants (litres)	8,013,575		
92	Average Price per Kilolitre (Australia)	\$ 2.52		
93	Price per Kilolitre- QLD	\$ 2.66		
94	Price per Kilolitre- NSW	\$ 2.99		
95	Price per Kilolitre- VIC	\$ 3.17		
96	Price per Kilolitre- SA	\$ 2.28		
97	Price per Kilolitre- WA	\$ 1.52		
98	Average Expenditure on Water- Restaurants (annual)	\$ 20,226		
99				
100	% business expenditure on wages- restaurants	39%		http://rca.asn.au/magazine/staffing-costs/
101	% expenditure on staff on-costs and training costs	9.10%		
102				
103	Restaurant average rent (% of revenue)	7%	Based on estimated 5-8%	https://smallbusiness.chron.com/percentage-rent-vs-revenue-restaurants-63410.html

12.2 Appendix- Value Propositions



Case Study: Black Star Pastry

WHERE: Pop-up market in ...

WHAT: 'Café de Paris' chocolate fondants

HOW: 2 x 600 series Evereo units

Black Star Pastry did a 3 day pop-up stand in a night street market. They maintained these units at 62°C in the Evereo units and served 2000 units over the 3 day period. Their service time was between 16 and 23 seconds, including product decoration and service. They purchased the fondants for \$2.16 per unit and sold them at \$9.00 per unit. This generated them a gross return of \$13,680. Based on operating 200 days a year at this rate of return, the Black Star Pastry annual ROI for the initial capital cost of the Evereo units (based on a 10% net margin including other expenses^{*)} is \$88,000*

* Assumes that net margin is 10% excluding annual cost of Evereo units, and that operation would not have occurred without Evereo units (i.e. net benefit was previously \$0)

* Assuming \$7000 per unit, 5 years operating period and \$200 annual maintenance cost per unit

Gross Return
\$13,680
For 3-day period

Annual Evereo ROI
\$88,000
Operating 200 days each annum



Case Study: Grill Pub Restaurant

WHERE: Olomuc, Czech Republic

WHAT: 'Restaurant on wheels' foodtruck

HOW: Evereo 0.gen

The Challenge: Serving more than 100 people per hour from the foodtruck

The Approach: Transitioning from the XEVC-0511-GPR to the Evereo 0.gen, a UNOX unit capable of holding ... serves of product at service temperature and maintaining product quality for up to ... days.

The Result: The speed of delivery increased from 100 people to 300 people per hour (an average food service time of 12 seconds per second). Additionally, the production of sous vide product became possible, and food wastage reduced drastically due to viable overnight food storage.

Key Benefits

- Increased speed of delivery (**3x turnover**)
- Reduced food wastage
- Sustained product quality

Additional Scoping- Pains & Gains

A sample of scoping from Restaurant Channel Analysis

PAINS

- ❌ Low-value cuts take too long to cook - We can't anticipate demand.
- ❌ We throw too much cooked meat out- why can't we store it?
- ❌ Refreezing reduces freshness and food safety - some customers are complaining.
- ❌ We're trying to introduce lower-value cuts, but we're not sure how to market them.

GAINS with Evereo

- ✅ We store hot food for days now - the beef cheeks we made yesterday will be even better tomorrow!
- ✅ Food wastage has reduced; no need to throw out!
- ✅ We're ready to serve customers anytime - sales have increased.
- ✅ Cheaper cuts are more tender and flavourful than alternative proteins and reduce our meal costs



HOLDING

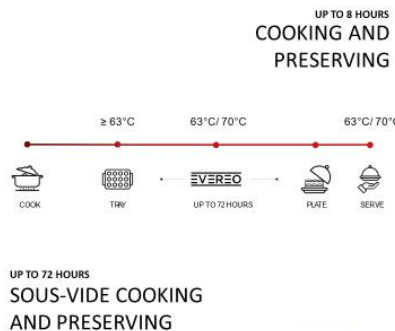


Figure 17: Greenleaf Case Study Material, Pains & Gains Samples (supported by UNOX material)



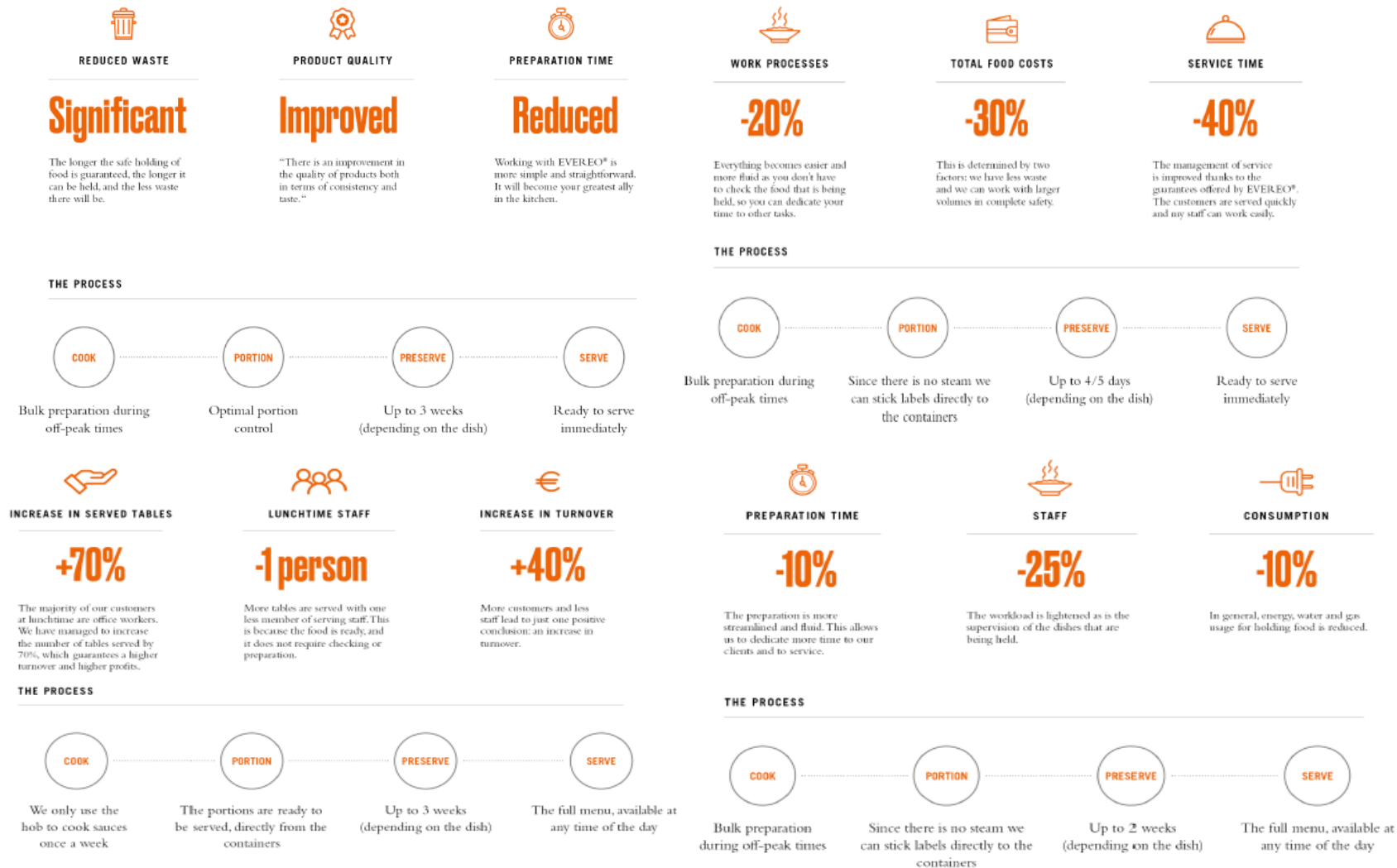


Figure 18: UNOX Case Study- Evereo Technology