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Fermentation Hub
Business Case

Fermentation Tasmania

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Fermentation Hub

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Contents

1. Executive summary

Background

The purpose of this business case is to provide an overview of the costs, benefits and risks associated with a purpose-built fermentation facility—the fermentation hub—in northern Tasmania. This document demonstrates the value the facility can add and its viability.

FermenTasmania is the project proponent and is an industry-led, not-for-profit industry cluster established in 2016 to accelerate innovation, growth and collaboration for fermentation-based enterprises.

FermenTasmania's vision is for the project to be an internationally recognised centre for excellence for the design, production and marketing of fine fermented food, beverages and other products.

The fermentation hub will deliver a 1,800 square metre purpose-built fermentation facility located at Legana in northern Tasmania, 12 km north of Launceston. The project will be a proving ground for fermentation innovation through promoting and developing fermentation-based businesses and related skills through:

- providing specific fermentation equipment and support services for product development
- enabling research and education opportunities
- facilitating skills and training development
- offering tourism experiences.

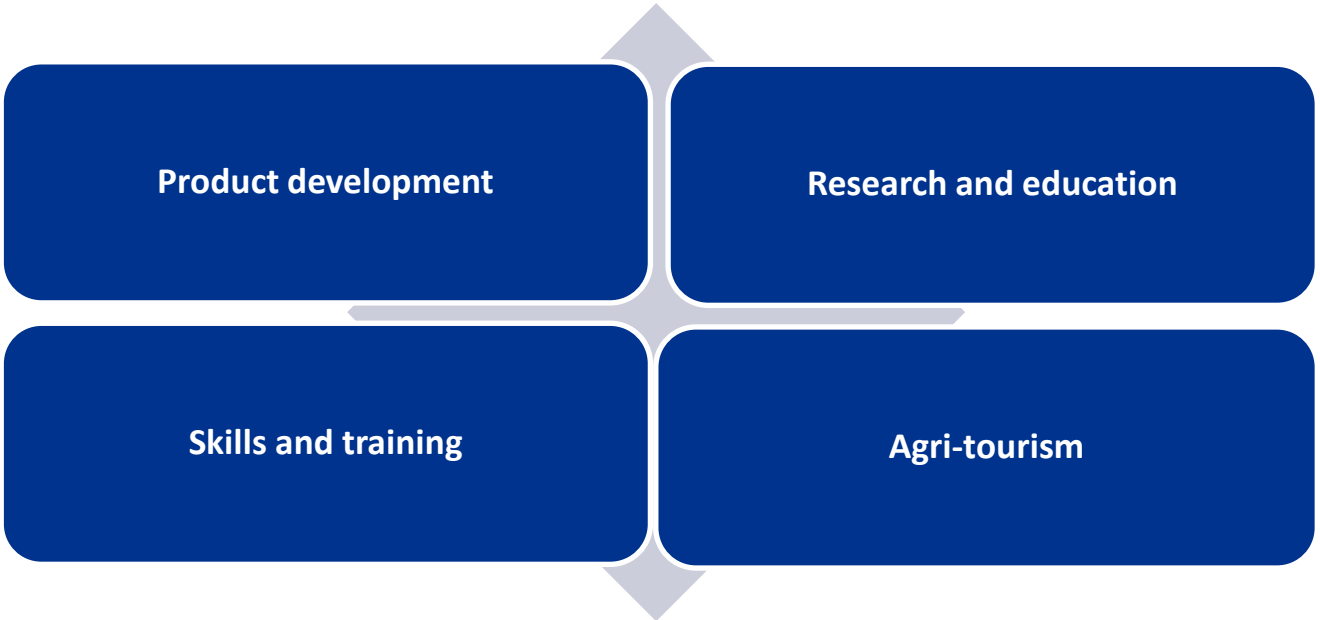
The facility has been designed as part one of a multi-staged development. Additional stages will be tailored and timed to meet future industry needs and when public and/or private opportunities present.

The business case will form the basis to seek support from the Australian and Tasmanian governments and the private sector.

The project

The creation of a purpose-built fermentation facility will drive the long-term regional economic growth and employment opportunities across Australia through four main components: product development, skills and training, research and education, and agri-tourism.

Figure 1.1: FermenTasmania's four key themes



Product development

A major outcome of the fermentation hub will be to facilitate businesses to test, develop and produce fermented products. The hub's approach to product development will therefore include strong supportive measures, such as:

- Addressing a barrier to entry for new participants by providing access to speciality and expensive equipment and production processes through rental agreements. This will allow emerging and small enterprises to produce fermented products. Typically, this has been a barrier to entry for new participants due to the high upfront capital cost.
- Offering the ability to test ideas and develop new products to a marketable quantity—effectively bridging the gap between producing a product on the kitchen bench to scaling up to a commercially marketable quantity. This will de-risk new product development by taking a concept through to a pilot and then to market it in a staged and supportive environment.
- Encouraging and supporting emerging and small businesses to develop in niche/premium markets (both domestic and international) including through commercial, marketing and export advice.
- Supporting new and growing businesses to navigate regulatory challenges such as industry specific legislation and regulation for fermented products.
- Facilitating collaboration across businesses to grow circular economy opportunities.

Skills and training

Workforce development for fermentation-based industries through industry specific skills and training opportunities is a key pillar of the fermentation hub's business. These offerings will include:

- Facilitating targeted training opportunities with industry specialists.
- Attracting interstate and international students and retaining local students and employees to undertake training and skills development courses in Tasmania.
- Providing a purpose-built facility to enable specialised skills and training development.
- Facilitating experiences for school groups and Vocational Education and Training (VET) courses to be exposed to the potential career opportunities in fermentation-based industries and other science, technology, engineering, and mathematics fields.

Research and education development

Integrating practical research and development opportunities with the technical equipment, other facilities and access to businesses is another feature of the fermentation hub. This will be achieved through:

- An internationally recognised centre of excellence for fermentation-based applied research and development with access to world-leading technology applicable to industry.
- Accelerating innovation, growth and collaboration amongst fermentation-based enterprises.
- Enhancing business, expertise and leadership capacity through education and research.
- Business support through collaborating and learning from industry experts and support networks (marketing and technical).
- Developing understanding of the human health benefits of fermented foods.
- Exploring opportunities through full production processes to improve reuse and reduce waste.

Agri-tourism

The fermentation hub will facilitate bespoke experiences for Tasmania's growing tourism market (e.g. learn to make your own cheese and bread courses). This aspect will increase utilisation of the facility, which will contribute to operating overhead costs and increase awareness of fermentation-based products (including those produced within the hub) and other industry-based marketing opportunities. Experiential tourism is key to regional destinations and the opportunity to learn fermentation skills will not only attract visitors to the region, it will also encourage future workers and entrepreneurs into the industry, growing its capacity and widening its appeal as a career.

Courses may include (but are not limited to):

- Sourdough bread making
- Cheese making (many different types)
- Beer brewing
- Cider making
- Distilling and gin/whisky making
- Making pickles and fermented vegetables
- Sparkling winemaking
- Composting
- Biofuel fermentation
- How to use fermented products in your cooking.

Project financial and economic assessment

The capital cost estimate for the project is $14.9 million and the annual operating costs are estimated to be $850,000 per year.

It is proposed that the Australian Government contributes $6.4 million (43 per cent of capital costs), the Tasmanian Government contributes $3.4 million (23 per cent) to the capital costs of the project. The balance ($5.1 million, 34 per cent) is provided in-kind and by other contributions from the private sector. The annual operating costs of the project will be met through levying annual charges on users.

Without the support of the Australian and/or Tasmanian government, a loan would be required to fund any shortfall. The principal and interest repayments on the loan would increase the annual charges on users, which would be unaffordable and reduce demand. This would significantly reduce the commercial viability of the project.

The project will create total economic benefits estimated to be worth $39.5 million in today's dollars, with a net economic benefit of $15.9 million after subtracting the present value of upfront and ongoing costs of the project.

The project has a benefit–cost ratio (BCR) of 1.7. Consequently, the project is economically viable under the assumptions applied in the analysis.

Further benefits during the construction phase of the project include the creation of 94 direct and indirect jobs and an increase in output of $30.2 million.

Stakeholder opinion

Stakeholders have shown their support for the project through extensive engagement, including the RDS Partners July 2015 Stakeholder Consultation Survey Report. This survey was based on 96 responses, which provided strong support for the FermenTasmania (and fermentation hub) concept. Responses confirmed that the sector needed an increasingly skilled workforce in technical production, new product development and business management. Subsequently, a consultation survey of about 40 fermentation-based organisations in Tasmania has supported the need for additional training and education in these areas.

The project will seek to complement, partner and support existing registered training organisations (RTO), rather than be in direct competition.

More recently, the project has gained support from a range of partners, including the West Tamar Council, University of Tasmania, Food Innovation Australia Limited, local business and industry, and suppliers of equipment and technical services.

The path to realisation

FermenTasmania will develop, construct and operate the project, including owning the associated project assets. A project risk assessment conducted by FermenTasmania has not identified any extreme risks to the project that cannot be mitigated to a tolerable level.

The project could obtain all relevant approvals and permits to commence construction within six months of funding approval. A 12-month construction period has been forecast.

Response to Covid-19

The project will provide stimulus to northern Tasmania's regional economy (and the broader economy) by creating $14.9 million of direct economic activity within six months from funding approval. In addition, the project will create 94 direct and indirect jobs during construction.

Once operating, the fermentation hub will provide significant support for developing and emerging food and beverage businesses. They may look to diversify their products, increase their opportunity to value-add and to enter new markets. This may provide a further opportunity for the Australian and Tasmanian governments to support small businesses recover from the impacts of Covid-19. For example:

- sponsoring product development and training courses for small business
- developing the sector's workforce through facilitating skills and training courses to assist with retention and/or redeployment of staff across business activities or job-sharing arrangements with other businesses in the sector
- leveraging the FermenTasmania and fermentation hub network to assist in communicating and implementing other support initiatives from the Australian and Tasmanian governments.

An updated demand assessment of the project has commenced to estimate the impact of Covid-19.

In summary

Through the Tasmanian Government's recently released *Competitiveness of Tasmania's Agriculture to 2050 White Paper,* the Government has recognised the role that FermenTasmania and fermented industries can play in the emerging priority area of the circular economy. This business case supports the Government's position and concludes that this 'shovel ready' project delivers positive economic outcome with a BCR of 1.7 and provides a strong case for funding support from the Australian and Tasmania governments.

The project will:

- create jobs and career pathways to meet the needs of industry
- deliver a positive impact on economic activity through value adding to primary produce and decreasing waste
- provide enhanced leadership capacity with industry through education and applied research
- accelerate innovation, growth and collaboration amongst fermentation-based enterprises and researchers within Australia and internationally
- align with the Government's emerging priorities for the agricultural industry to remain competitive through the circular economy.

2. Overview

2.1 Purpose of the business case

The purpose of this business case is to provide an overview of the costs, benefits and risks associated with a purpose-built fermentation facility in northern Tasmania. This document demonstrates the value the facility can add and its viability.

The business case will form the basis to seek support from the Australian and Tasmanian governments and the private sector.

2.2 Project title

The project is called the 'fermentation hub' (also referred to as 'the project').

2.3 Project proponent

The proponent is FermenTasmania (Fermentation Tasmania Ltd, ABN 33 609 538 338).

FermenTasmania is an industry-led, not-for-profit industry cluster established in 2016 to accelerate innovation, growth and collaboration for fermentation-based enterprises.

FermenTasmania's vision is for the project to be an internationally recognised centre for excellence for the design, production and marketing of fine fermented food, beverages and other products.

2.4 Summary of the project

The project will deliver a 1,800 square metre purpose-built fermentation facility located at Legana in northern Tasmania, 12 km north of Launceston. The project will be a proving ground for fermentation innovation through promoting and developing fermentation-based businesses and related skills through:

- Providing specific fermentation equipment and support services for product development
- Enabling research and education opportunities
- Facilitating specialised industry specific skills and training development
- Offering tourism experiences.

Based on the findings of a comprehensive feasibility study, extensive industry consultation and international research, FermenTasmania seeks to stimulate the growth of the fermentation industry and associated compatible businesses nationally and internationally through the establishment of a purpose-built facility. This will support the development of circular economies through encouraging products and materials to stay in use, regenerating natural systems and designing out waste and pollution. This is in favour of the typical cycle of make, use and dispose.

The 1,800 square metre facility has been designed as part one of a multi-staged development. Additional stages will be tailored and timed to meet future industry needs and when public and/or private opportunities present.

The facility aims to be an internationally recognised centre of excellence to develop capability and capacity to support the growth of regionally focused agri-food sectors and to develop innovative and best-practice systems for supporting skills and product development.

The project—with the support of emerging and small businesses, registered training providers and researchers—will deliver several significant ongoing benefits. These include:

- increasing value of food and beverages, including increased value-adding to primary produce and growing regional exports, both locally and nationally
- increasing employment opportunities through fermentation-based enterprises

- supporting existing fermentation-based business to meet their workforce needs to allow them to grow and expand
- retaining Tasmania's people and attracting overseas and interstate migration through job and training opportunities
- introducing a new and unique offering to the Tasmanian tourism landscape, with 'real' experiences in making cheeses, breads, wines and other fermented products
- increasing the recognition that Tasmania is a 'go to' place for growth in the circular economy through the emergence and strengthening of fermentation industries.

2.4.1 What is fermentation?

Fermentation is a transformative process in which microorganisms (bacteria, yeast and fungi) turn sugars into food acids, carbon dioxide and alcohol. Fermentation, which can occur naturally or by using a starting culture, preserves food, enhances flavours and has health benefits.

Beer, cider, wine, whisky, ginger beer, sourdough bread, cheese, salami, yoghurt and pickles are traditional forms of fermentation that are relatively well known. Over recent years, there has been a rise in popularity in some forms that were previously less well known, including:

- kefir—a cultured fermented beverage that, similar to yogurt, is made from milk, water or coconut milk
- kimchi—a staple Korean side dish, made from salted and fermented vegetables
- kombucha—an effervescent drink fermented from sweetened black or green tea.

2.5 How the project developed

The initial stages of the development of FermenTasmania evolved from work undertaken by the University of Tasmania's Centre for Food Innovation in 2013. The concept was further developed by two leaders within the Tasmanian food and beverage industry—Kim Seagram and Tom Lewis—who also started engaging with industry, research, education and government agencies.

2.5.1 Stakeholder engagement

In 2015, the concept was introduced more broadly through an online survey supported by the Northern Tasmania Development Corporation (NTDC). The survey received 98 self-selected responses and indicated strong support for the concept. The survey responses were documented in FermenTasmania's 2015 report on the stakeholder consultation survey.

Through the support of the Tasmanian Government's Office of the Coordinator-General, further stakeholder engagement was undertaken to specifically:

- present the FermenTasmania concept to stakeholder groups and individuals and test
- gain a solid understanding of the need of Tasmanian industry, research providers, training providers and government, and identify their aspirations regarding industry and product development, research, skills and training, and tourism experiences
- present a clear and agreed framework for the development of a business case for FermenTasmania, including the key focus area for the development and possible partnerships
- obtain a solid understanding of:
  - what else is being done and where
  - who FermenTasmania's key initial stakeholders and partners are—local, national and international
  - who FermenTasmania should engage with and the objective of these engagements.

In 2016, FermenTasmania undertook around 60 detailed interviews with producers, consultants, researchers and educators to establish the key priorities for FermenTasmania and identify the key barriers to growth of the sector. Several key topics emerged—product development, research and education, skills and training and agri-tourism—which established the four key themes for FermenTasmania and the project.

Recently, further representations and discussions on the concept of the project have occurred with local councils, University of Tasmania representatives, and state and federal ministers. The concept has received a positive response, further reaffirming the significance of the project.

An updated demand assessment of the project has commenced to estimate the impact of Covid-19.

2.5.2 International fermentation study tour

In 2015, an international fellowship to support the establishment of the FermenTasmania concept was jointly supported by Agrifood Skills Australia, the International Specialised Skills Institute (ISS Institute) and the University of Tasmania.

It enabled the ISS Institute Fellow, Dr Tom Lewis, and Dr Anna Carew and Ms Natalie Fryar, to undertake three separate study tours to gain an in-depth understanding of current trends in fermentation research, development and training in the United Kingdom, Denmark, Sweden, Germany, France and the United States of America.

From a skills, education and training perspective, a set of common factors were seen to underpin best practice development of fermentation capability to support vibrant tourism, food and drink production and research activity:

- Design and deliver capability-building courses that are founded on best practice and that 'make sense' within the regional context and culture.
- Provide graded series of courses/units, through which participants can initiate their learning at the 'enthusiastic amateur' level and progress to high-level technical or theoretical competency, according to their ambition and career needs.
- Create opportunity for formal qualifications from courses recognised and respected amongst potential employers, preferably with international recognition.

From these common factors emerged several key recommendations for those developing and delivering skills and education for current and future workers in the fermentation sector:

- Ensure all training has a connection to context/application and has clarity on transferability of skills (moveable skills mean a moveable workforce, which will support a diverse, adaptable industry).
- Provide a range of moments, spaces, inspiration and support for people to make their own connections and explore mutually beneficial opportunities. For example, people who come together to hear stimulating speakers are likely to engage in discussions on innovations given time and space to do so.
- Provide a conduit to, or develop delivery agreements for, internationally recognised training to reduce the investment risk and insularity associated with local development of courses.
- Facilitate industry-led forecasting and prioritisation of relevant (e.g. technical, marketing, business and tourism) education, research and technology transfer activities.
- Invest in direct sector engagement and support by, for example, developing and delivering an intensive short course/graduate certificate on science and business for small to medium fermentation start-ups.
- Pursue international partnerships to identify and agree opportunities for collaborative delivery of education, training, R&D and exchanges. The fellowship report recommended the establishment of several partnerships between FermenTasmania (and the University of Tasmania) and international organisations with similar objectives.

2.5.3 Food Innovation Australia Limited cluster program funding

In May 2018, FermenTasmania received $840,000 of matched funding from Food Innovation Australia Limited (FIAL) to assist in transforming the future of the Australian agri-food economy through fermentation technologies. FIAL is an industry-led, not-for-profit organisation focused on growing the share of Australian food in the global marketplace. FIAL works with the food and agribusiness industry by sharing knowledge, building capacity and creating connections.

This funding is to support the operations of FermenTasmania and to further enhance an environment of collaboration, innovation and learning through the coordinated clustering by linking of additional education spaces, coworking areas and community facilities.

2.5.4 Tasmanian Fermented Food and Drink Workforce Development Project

In September 2018, FermenTasmania was funded by Department of State Growth through Skills Tasmania to undertake a project to support workforce planning and development. The project:

- identified current and predicted workforce development needs—both technical and business needs—within and across the different fermentation sectors. This applies to workforces in enterprises, sectors, cross-sectors and regions
- established improvements to engagement with industry, such as through the training and workforce development system
- informed the development of relevant training opportunities.

The project can therefore support the workforce requirements in Tasmania's fermented food and beverage industry in several ways (details are in section 3.2).

2.5.5 Partner support for the project

The project has in-principle support from a range of partners, including:

- West Tamar Council (the local council where the facility is located)—provision of land and auxiliary service for the site of the fermentation hub—See Appendix B
- University of Tasmania and the UK Institute of Brewing & Distilling—an undertaking to explore the development of a partnership to deliver brewing and distilling curricula through the University of Tasmania's University College. An initial memorandum of understanding has been entered into between Fermentation Tasmania and the University of Tasmania—See Appendix B
- suppliers of equipment and technical services—sponsorship and supply of equipment at a discounted rate
- Food Innovation Australia Limited—seed funding to support the work of FermenTasmania to facilitate sharing and collaborating fermentation technologies
- several national and international organisations—a willingness to explore collaboration opportunities with FermenTasmania, including the New Zealand Food Innovation Network, Danish Food Cluster, University of California (Davis) and Eldrimner, the Swedish National Centre for Artisan Food
- local business and industry—a demand for the project has been established through the stakeholder consultation survey and workforce development project.

2.6 Major milestones

Several significant milestones for the project have already been achieved (Table 2.1), while four major milestones remain (Table 2.2).

Table 2.1: Key milestones achieved

Milestone	Date achieved
Stakeholder consultation survey report	July 2015
Grant funding received from Food Innovation Australia Limited	May 2018
Tasmanian Fermented Food and Drink Workforce Development Project, final report	September 2018
Key support from project partners secured	Various

Table 2.2: Key milestones to be achieved

Milestone	Target date
Funding confirmed	August 2020
Construction commences	January 2021
Fermentation hub—facility opening	November 2021
Fermentation hub—teaching and learning commences	January 2022

3. Service need (case for change)

3.1 Current state

Tasmania has a strong reputation and potential as a producer of world-class food and beverages. The state currently exports 77 per cent of its $4.63 billion processed food value either interstate ($2.84 billion) or overseas ($0.74 billion). In some markets, however, premium products are sold into commodity-based or low-value markets.

At a national level, the Australian Government has the target to develop the Australian agriculture, fisheries and forestry sector from a $58 billion sector to $100 billion by 2030. A key to achieving this is through unlocking innovation, growing sustainably (reducing waste), and engaging with people and communities. An annual 3.7 per cent growth rate is required to reach the target—an increase on the current growth rate of 2.6 per cent.

Through capturing more value from primary production and the circular economy through fermentation, significant economic benefits and employment opportunities would be created in Australia's rural and regional communities where agriculture is a main economic and employment driver.

Fermentation in Tasmanian and in other areas of Australia has already been established in several markets (wines, beer, cider and cheese) where it delivers significant economic and regional benefits. An opportunity exists to expand fermentation through Australia to other areas and products to meet the increased global demand for natural products with health benefits.

Potential options to extract great value through fermentation are, for example:

- maximising the value of the circular economy from second-grade vegetables through pickling and preserving and exporting overseas – rather than using as feed for livestock
- developing plant-based food and alternative proteins, such as cheeses made from potatoes and cauliflower
- emerging enterprises testing and proving a concept and having the confidence and market support to expand on a stand-alone basis.

Current barriers to growth of value-added fermented products and advancements in the circular economy include a lack of specialised staff training to meet current and future workforce demand, and difficulty in accessing capital-intensive specialised fermentation equipment. The FermenTasmania concept enables the government to cost-effectively overcome these barriers to growth.

3.1.1 Tasmanian context

The economic performance of the Tasmania economy was improving prior to the impacts of COVID-19. The June 2019 Deloitte Access Economics Business Outlook confirmed the strength and momentum in the Tasmanian economy. The Outlook highlighted that strong population and spending growth, combined with the nation-leading growth in the building and construction sector and increasing exports are key factors in Tasmania's impressive growth story.

However, previously Tasmania has not demonstrated such an upward-trending economic position. Traditionally, Tasmania has faced several economic challenges and has performed poorly against key economic indicators. Employment outcomes and economic growth sit well below the national average. This performance leaves the state highly dependent on GST and welfare payments from the Australian Government.

The economic challenges for Tasmania include:

- **Sustained economic underperformance**: Tasmania's economy grew more slowly than the national average in 2016–17, as it did every year since 2008–09. Over the eight years since then, Tasmania's economy has grown at an average annual rate of 1 per cent—well below the national average of 2.6 per cent per annum. Tasmania's growth rate in 2016–17 was slower than that of any other state or territory, with the exception of Western Australia.
- **Tasmania's constrained economic transition**: Tasmania's economy has historically relied on resource and commodity-based industries. However, scale, geographical isolation and regionalisation put the State at a distinct disadvantage in these traditional export industries.

- **Skills and education deficit**: Tasmania has the lowest educational attainment in Australia—27.5 per cent of Tasmanians aged 15–75 have no qualification beyond Year 10. This is the highest proportion of any state or territory, and 8.2 percentage points above the national average.
- **Productivity**: Tasmania is also significantly less productive than the national economy. For each hour that employed Tasmanians worked in 2016–17, they produced $76.11 worth of goods and services—less than in any other state or territory, and $11.06, or 12.7 per cent, below the national average. Over the last three years, labour productivity in Tasmania has declined 1 per cent (after allowing for the effects of inflation), whereas in the rest of Australia labour productivity rose by 3.3 per cent over this period.
- **High rates of unemployment:** While Tasmania's unemployment rate has been gradually declining over the past four years, its long-term unemployment rate is still the highest in the nation. In March 2018, the unemployment rate for Tasmania was 6 per cent compared to the nation's 5.6 per cent. However, the extent of unemployment in Tasmania has traditionally been understated by a markedly lower labour force participation rate than in the rest of Australia.

Economists and the business community recognise that higher education and skills training will be a catalyst for improving economic and social conditions as the State seeks to recover from the economic and social impacts of COVID-19. Higher rates of participation in higher education and training are often linked to higher levels of productivity and living standards, while investment in research is often associated with improvements in economic growth. However, Tasmania has the lowest proportion of people with a bachelor's degree or higher in Australia—only 22.4 per cent have completed university, compared to 29.7 per cent across Australia.

3.1.2 Regional context

Northern Tasmania Development Corporation Limited's (NTDC) 2019 Regional Economic Development Strategy recognises several of the region's economic issues and challenges that need to be addressed to ensure successful community, business and industry outcomes.

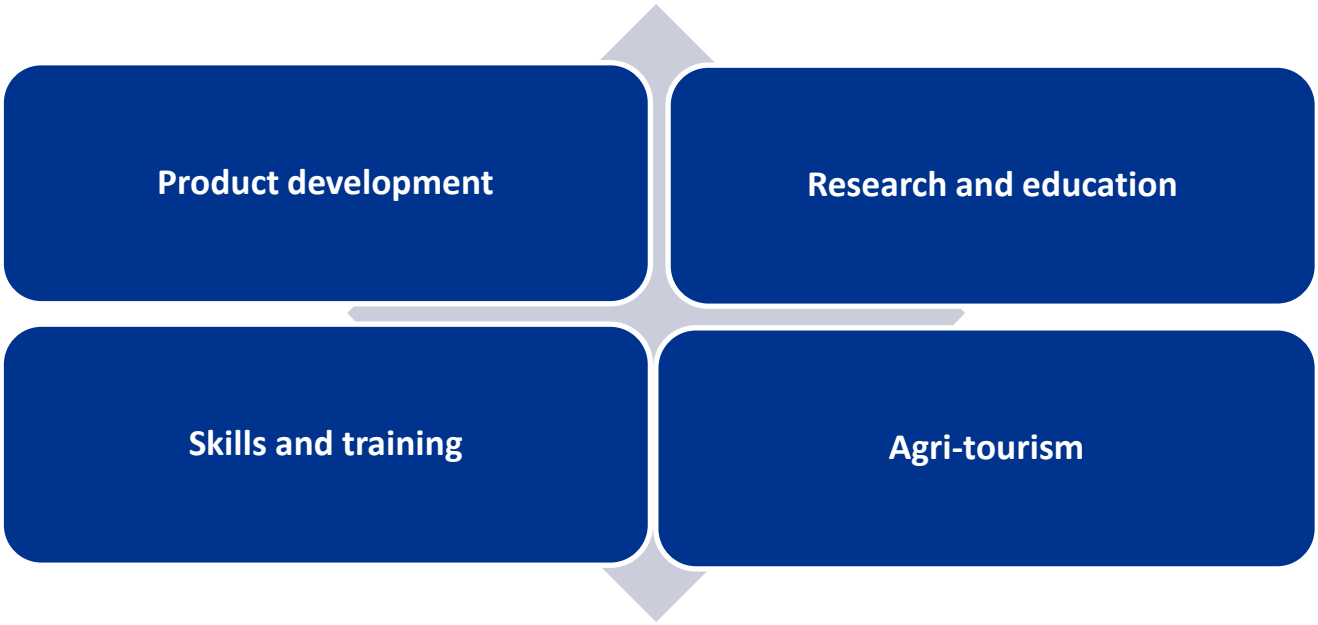
- Over the past two decades, the trade of the Northern Tasmania region has become imbalanced; it now imports considerably more goods and services from the rest of Australia and the rest of the world than it can pay for with its export earnings.
- In recent years, population growth has been slower in the Northern Tasmania region than that experienced in Hobart or the Australian average—although recent trends are indicating improved growth.
- The Northern Tasmania region has an ageing population, and the working age population is expected to contract significantly over future years.
- Education and qualification levels of Northern Tasmanians are lower than the Tasmanian and Australian averages.
- Investment in non-dwelling capital (civil works, buildings, equipment) is a significant source of productivity growth, and is less in Northern Tasmania than in Australia on average.
- Climate change will affect the frequency and magnitude of adverse climate events and may impact agricultural production. This is however also likely to be an opportunity compared to other parts of Australia due to the State's relatively reliable water resources and cooler climate.
- Targets to increase economic growth, population and tourism may increase pressure on affordable housing, infrastructure and the environment.
- Northern Tasmania does not have the level of digital literacy necessary to optimise usage of available digital connectivity. Digital literacy and knowledge-creating capacity is important for supporting innovation, specialisation and boosting productivity and export activity.
- In some parts of the Northern Tasmania region, labour participation and productivity are relatively low and not all people within the region share in the benefits of economic prosperity.
- For the Northern Tasmania region, and Tasmania as a whole, size and distance from markets will remain a challenge.
- The seasonality of tourism affects the viability of the sector, future investment and permanency of employment opportunities.

This project is targeted to address several of these issues and will help to improve the performance of the indicators mentioned above.

3.2 Benefits sought

The creation of a purpose-built fermentation facility will drive the long-term regional economic growth and employment opportunities across Australia through four main components: product development, skills and training, research and education, and agri-tourism.

Figure 3.1: FermenTasmania's four key themes



1. Product development

Key outcomes for FermenTasmania are to increase the use of secondary products from agriculture and enhance the circular economy. A major part of the fermentation hub's business will be to facilitate businesses to test, develop and produce fermented products. The hub's approach to product development will therefore include strong supportive measures, such as:

- Providing access to speciality and expensive equipment and production processes through rental agreements with emerging and small enterprises to allow the production of fermented products. Typically, this has been a barrier to entry for new participants due to the high upfront capital cost.
- Offering the ability to test ideas and develop new products to a marketable quantity—effectively bridging the gap between producing a product on the kitchen bench to scaling up to a commercially marketable quantity. This will de-risk new product development through taking a concept through to a pilot and then to market it in a staged and supportive environment.
- Encouraging and supporting emerging and small businesses to develop in niche/premium markets, including through commercial, marketing and export advice.
- Supporting new and growing businesses navigate regulatory challenges such as industry relevant legislation and regulation for developing products.
- Facilitating collaboration across businesses to grow circular economy opportunities.

2. Skills and training

Workforce development for fermentation-based industries through supporting skills and training opportunities is a key pillar of the fermentation hub's business. Support will be provided through many offerings, including:

- Supporting the workforce development requirements of the existing enterprises through facilitating targeted training opportunities.
- Attracting interstate and international students and retaining local students and employees to undertake training and skills development courses in Tasmania.
- Providing a purpose-built facility to enable skills and training development.

- Facilitating experiences for school groups and VET courses to be exposed to the potential career opportunities in fermentation-based industries and other science, technology, engineering, and mathematics fields.

3. Research and development

Integrating practical research and development opportunities with the technical equipment, other facilities and access to businesses is another feature of the fermentation hub. This will be achieved through:

- An internationally recognised centre of excellence for fermentation-based applied research and development with access to world-leading technology applicable to industry.
- Accelerating innovation, growth and collaboration amongst fermentation-based enterprises and the wider circular economy.
- Enhancing business, expertise and leadership capacity through education and research.
- Business support through collaborating and learning from industry experts and support networks (marketing and technical).
- Developing understanding of the human health benefits of fermented foods.
- Exploring opportunities through full production processes to improve reuse and reduce waste.

4. Agri-tourism

The fermentation hub will facilitate bespoke experiences for Tasmania's growing tourism market (e.g. learn to make your own cheese and bread courses). This aspect will increase utilisation of the facility, which will contribute to operating overhead costs and increase the awareness of fermentation-based products (including those produced within the hub) and other industry-based marketing opportunities. Experiential tourism is key to regional destinations and the opportunity to learn fermentation skills will not only attract visitors to the region, it will also encourage future workers and entrepreneurs into the industry, growing its capacity and widening its appeal as a career.

Courses can include (but are not limited to):

- Sourdough bread making
- Cheese making (many different types)
- Beer brewing
- Cider making
- Distilling and gin/whisky making
- Making pickles and fermented vegetables
- Sparkling winemaking
- Composting
- Biofuel fermentation
- How to use fermented products in your cooking.

An industry-led and market supported project

Several leaders in the Tasmanian and Australian food and beverage industry support the project concept and recognise the strong demand for the facility, the need for skills development and the removal of entry barriers for business. Other stakeholders have shown their support for the project through extensive engagement, including the RDS Partners July 2015 Stakeholder Consultation Survey Report. This survey was based on 96 responses, which provided strong support for the FermenTasmania concept. Responses confirmed that the sector needed an increasingly skilled workforce in technical production, new product development and business management. Subsequently, a consultation survey of about 40 fermentation-based organisations in Tasmania has supported the need for additional training and education in these areas.

Facilitating collaboration and networking

The project will establish a cluster environment of interconnected businesses, suppliers, and associated institutions. A cluster environment is considered to increase the productivity with which enterprises can compete, nationally and globally. This project provides opportunities for increased collaboration and networking in the food and beverage sector through building on the state's primary production and through supporting the transfer of knowledge and experiences between businesses. These are both critical elements to increasing the likelihood of success for a start-up business and overall business performance.

The potential impact from the start-up community to the economy was highlighted in research undertaken by PwC that found start-up businesses have the potential to contribute over $100 billion to Australia's GDP and create over half a million new jobs by 2033.

Developing the Tasmanian workforce

FermenTasmania undertook a workforce development project of the Tasmanian food and beverage industry and established a clear need for workforce development activities across the entire value chain of fermenting-focused enterprises.

The project included engagement with key enterprises involved in producing value-added food and drink through fermentation. The key findings of the project indicated that at the end of 2017:

- about 1,100 people were employed in the fermentation sector in Tasmania
- total employee numbers per enterprise ranged from 1 to 57
- the median number of employees per enterprise varied between sectors, from three in the cider sector to 12 in the dairy sector.

The growth of the fermentation sector over the next three to five years will require around 350 new positions to be filled, comprising around:

- 100 management/leadership roles
- 100 specialist roles
- 150 operations roles.

Interviewees of the project indicated a strong preference for workforce development to be focused on the operations and specialist categories.

The Tasmanian example for the need for future workers to support the fermentation industry is expected to be mirrored in other regions of Australia.

Realising the opportunity for fermented products

Fermented food and beverages sit at the intersection of two megatrends that are continuing to define consumption patterns—the demand for natural products that also deliver added health benefits. Innova Market Insights estimate the average annual global growth of food and beverage launches tracked with fermented claims is 11 per cent for the period from 2014 to 2018.

Growing consumer awareness about the link between gut health and overall health and wellness is a major factor driving the renewed focus on fermented food and beverages (Global Data, 2018). A 2017 survey from Ingredient Communications indicated that 73 per cent of customers are willing to pay a higher retail price for products made with ingredients they recognise and trust.

The following example illustrates the rapid growth of a small fermentation business:

- In September 2018, Organic & Raw Trading Co, which makes the MOJO brand of organic, naturally fermented kombucha, was acquired by the world's largest beverage company, Coca-Cola, in a multimillion-dollar deal. The company started making kombucha in the kitchen of the founder's home in South Australia nine years ago.

- The acquisition has led to distribution for the product increasing from about 4,000 retail outlets, including health food stores, organic markets and selected supermarkets, to more than 100,000 outlets around Australia and possibly overseas.
- According to Nielsen Homescan data, kombucha sales have risen 174 per cent over three years, while carbonated soft drink sales have fallen 0.5 per cent. Household penetration doubled last year to 5.5 per cent and now exceeds that in the US.
- Coca-Cola said kombucha was the fastest-growing beverage category in Australia, fuelled by growing consumer interest in functional, organic and pro-biotic beverages with less sugar (The Australian Financial Review, 18 September 2018).

3.3 Preliminary options

Several options were considered to realise the opportunity of establishing a facility to support fermentation-based industries. Three main options were assessed:

- retrofitting existing sites—multiple locations
- retrofitting an existing site—single location
- a new bespoke greenfield development.

Table 3.1 outlines the assessment of each option. The assessment concluded that a new bespoke greenfield development is the preferred option.

Table 3.1: Option assessment

Project option	Advantages	Disadvantages
Retrofitting existing sites—multiple locations	• Potential for a staged implementation • Broader physical footprint of the project	• Existing infrastructure ineligible for funding under the Australian Government's Building Better Regions Fund • Loss of cross-pollination of ideas, learning and opportunities between customers, when there are different locations • Operational inefficiencies and challenges of managing multiple sites (including multi-use of common equipment) • Potential challenges for approvals for food production with existing sites (e.g. local government planning schemes) • May have to compromise on design aspects when retrofitting existing sites • Likely to be more expensive than a new development (~130 per cent) • Potential higher maintenance costs when using older sites
Retrofitting an existing site—single location	• One location to promote collaboration and partnerships between businesses, researchers and industry • A stronger and clearer presence within the community, with one location • Operational efficiencies of managing a single site	• Existing infrastructure ineligible for funding under the Australian Government's Building Better Regions Fund • Unable to efficiently deliver a staged development if full funding not available • Potential challenges for approvals for food production with an existing site (e.g. local government planning schemes) • May have to compromise on design aspects when retrofitting an existing site • Likely to be more expensive than a new development (~130 per cent) • Potential higher maintenance costs with an older site
A new bespoke greenfield development	• A new development is eligible for funding under the Australian Government's Building Better Regions Fund • Provision of land and auxiliary services for a new site from West Tamar Council • A stronger and clearer presence within the community, with one location • One location to promote collaboration and partnerships between businesses, researchers and industry • Purpose-built to meet demand and optimise design • Opportunity for project partners and developing businesses to co-locate within the same precinct and thus build connections to grow the circular economy. • A stronger claim to be 'world-class' with a bespoke, purpose-built facility	• Unable to efficiently deliver a staged development if full funding not available

4. Project summary

4.1 Objectives, outcomes and outputs

4.1.1 Objectives

This project will drive the long-term regional economic growth across Australia through developing:

- **Comparative advantage and business competitiveness**—through building industry capacity by fostering entrepreneurs and small and medium-sized enterprises (SMEs), providing technical assistance and promoting creativity and innovation
- **Human capital**—by developing skills and employment opportunities and supporting current and future workforce skill requirements
- **Partnerships and integrated planning**—through fostering the formation of partnerships and enhancing collaboration in the circular economy.

4.1.2 Outcome

The project will:

- create jobs and career pathways to meet the needs of industry
- deliver a positive impact on economic activity in the circular economy through value adding to primary produce and decreasing waste
- provide enhanced leadership capacity with industry through education and applied research
- accelerate innovation, growth and collaboration amongst fermentation-based enterprises and researchers within Australia and internationally.

4.1.3 Outputs

The project will deliver a 1,800 square metre purpose-built fermentation facility located at Legana in northern Tasmania. The project will be a proving ground for fermentation innovation through promoting and developing fermentation-based businesses and related skills through:

- providing specific fermentation equipment and support services for product development
- enabling research and development opportunities
- facilitating skills and training development
- offering tourism experiences.

4.2 Fermentation hub

The project comprises the development of a purpose-built building with leading edge equipment and collaborative spaces. The building will accommodate all operating aspects of the project with aspiring businesses, researchers, training courses, agri-tourism providers and school groups all using and sharing the facility.

The 1,800 square metre facility has been designed as part one of a multi-staged development. Additional stages will be tailored and timed to meet future industry needs and when public and/or private opportunities present.

The proposed site is located 10 km north of Launceston's CBD, just south of Legana. West Tamar Council owns the proposed site and is supporting the project through providing this land in-kind. This greenfield site has been strategically selected due to its proximity to Launceston and the opportunity it offers for further expansion and development of related businesses within the new industrial zone. For example, a business may outgrow the capacity of the project's facility and establish a stand-alone facility within the industrial area while still being near the project's resources.

The average construction cost of the building is $4,000 per square metre ($7.2 million in total), with the fit-out of equipment estimated at $3 million. The capital cost of the facility is to be met by the public and private sector through a combination of cash and in-kind support.

During operations, four staff will be employed to support the facility—a general manager, a technical operator, a technical trainee and an administration officer. Support for marketing, export, business and other technical aspects will be contracted in where required to support the project and the users of the facility. The facility will hold the necessary accreditation (or help individual businesses to obtain it) and plans for activities, including:

- licenses in accordance with local state and commonwealth government food and beverage production
- a Hazard Analysis and Critical Control Points food safety and risk assessment plan, which covers the seven key principles in food safety of hazard analysis, critical control points, critical limits, critical control monitoring, corrective action, procedures, record keeping and premises
- accreditation for the export of products by the Australian Quarantine and Inspection Service (AQIS) under the *Export Control Act 1982* (Cth) for prescribed goods, such as dairy products, plant products and organic produce. Some prescribed goods intended for export must be prepared at registered premises, which means that the premises must be constructed, equipped and operated in an effective and hygienic manner, and be approved by AQIS.

An annual operating budget of $850,000 is forecast, which will be met through annual charges levied on the users/customers of the facility. No ongoing public funding is required to support the operations of the project.

5. Strategic considerations

This project is strongly aligned with the objectives, outcomes and outputs of several national, state and regional policies and strategies.

5.1 Australian Government

5.1.1 Building Better Regions Fund

The Australian Government's Building Better Regions Fund is a $841.6 million commitment to:

- drive economic growth
- build stronger regional communities into the future.

The intended outcomes of the fund are to:

- create jobs
- have a positive impact on economic activity, including Indigenous economic participation through employment and supplier-use outcomes
- enhance community facilities
- enhance leadership capacity
- encourage community cohesion and sense of identity.

The fund is structured with two grant opportunities—a community investment stream and an infrastructure projects stream. The project seeks funding for 50 per cent of total eligible project costs from the infrastructure stream.

The infrastructure projects stream will support projects for new infrastructure or the upgrade or extension of existing infrastructure that provide economic and social benefits to regional and remote areas.

5.1.2 Target of a $100 billion agriculture, fisheries and forestry sector by 2030

The Australian Government has the target to develop the Australian agriculture, fisheries and forestry sector from a $58 billion sector to a $100 billion sector by 2030. Unlocking innovation, growing sustainably (reducing waste) and engaging with people and communities are key to moving towards this ambitious goal. It is estimated that an annual 3.7 per cent growth rate is required to reach the target. The current growth rate of 2.6 per cent would only see the sector reach $88 million by 2030.

5.1.3 Launceston City Deal

The Launceston City Deal is a 10-year plan (April 2017 to March 2027) to make Launceston one of Australia's most liveable and innovative regional cities, with growing incomes and falling levels of disadvantage. The Australian and Tasmanian governments and the City of Launceston are cooperating to deliver integrated investment and practical actions that build on Launceston's strengths and tackle key challenges.

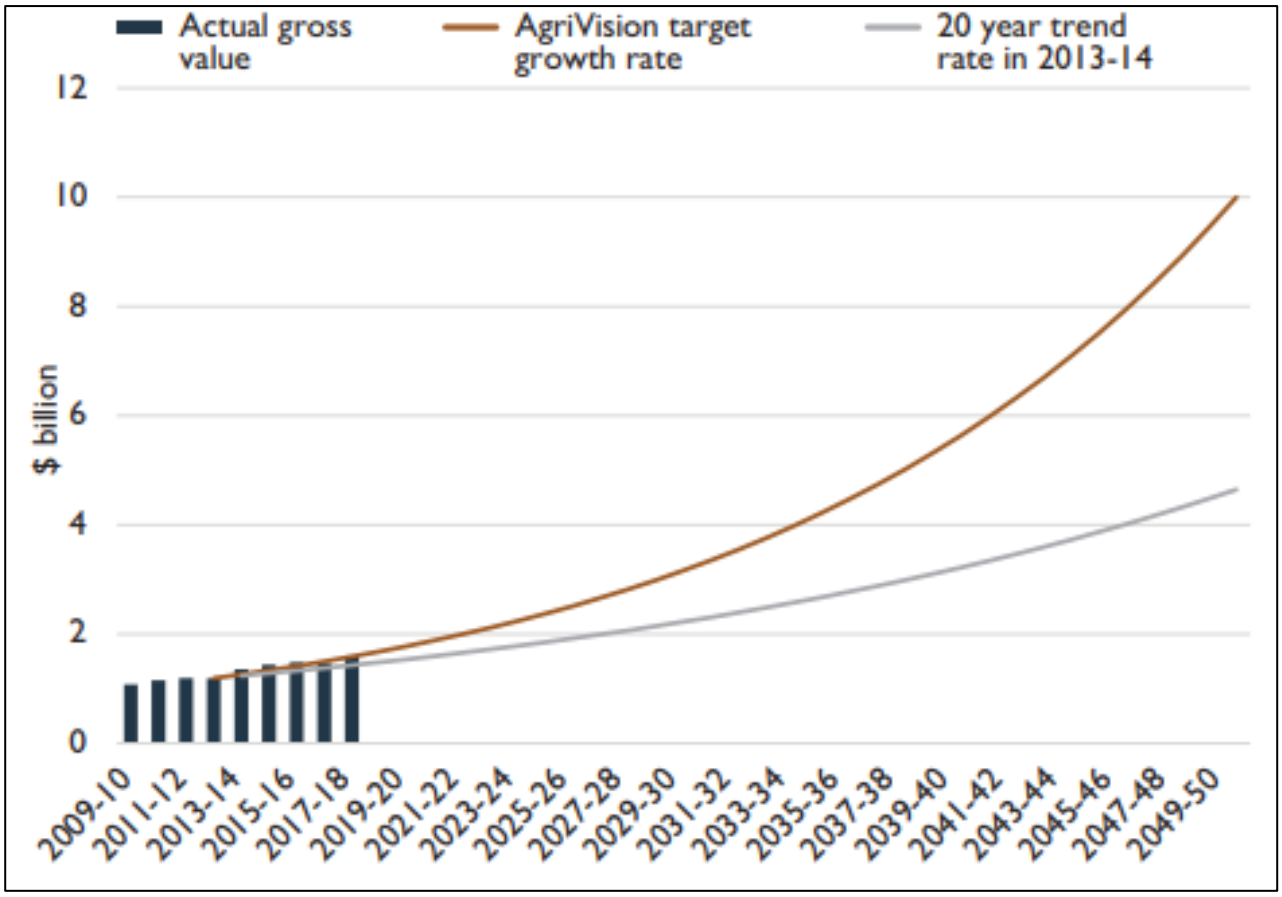
5.2 Tasmanian Government

5.2.1 Tasmania's Sustainable Agri-Food Plan 2019–23

Tasmania's Sustainable Agri-Food Plan 2019–23 supports the Tasmanian Government's AgriVision 2050 to grow the value of the agriculture sector in Tasmania tenfold to $10 billion per year by 2050. The plan's key themes are 'grow, make, protect and experience'. The plan recognises FermenTasmania as a key initiative under the 'investment attraction, infrastructure and brand support' theme.

The plan reports that the farm gate value of agriculture was $1.6 billion in 2017–18, of which food agriculture comprised 83.8 per cent. This reflected an annual increase of 9.1 per cent. Figure 5.1 outlines the further growth to 2050 required to reach the $10 billion per year target.

Figure 5.1: Gross farm gate value of Tasmanian agriculture



Source: Department of Primary Industries, Parks, Water and Environment, Tasmania's Sustainable Agri-Food Plan 2019–23, Tasmanian Government, https://dpipwe.tas.gov.au/Documents/Tasmanian%20Sustainable%20Agri-Food%20Plan%202019-23.pdf.

The Tasmanian Government has recently released the *Competitiveness of Tasmania's Agriculture to 2050 White Paper.* The White Paper sits under the Agri-Food plan however importantly recognises the emerging priority of the circular economy and where fermented industries "can provide opportunities which add value to waste products, create premium food and beverages that support the Tasmanian Brand".

5.2.2 Tasmanian Trade Strategy 2019–2025

The Tasmanian Trade Strategy 2019–2025 sets out a coordinated approach to work with business and partners to grow trade, both domestically and internationally. It has a clear focus on building capability for SMEs, value-adding existing business activities, expanding Tasmania's international influence and providing the right conditions for all Tasmanian businesses to succeed.

5.2.3 Tasmanian 2015 Population Growth Strategy

The Tasmanian 2015 Population Growth Strategy outlines the approach to reaching the Tasmanian Government's target to grow the population to 650,000 people by 2050 from 515,000 people in 2015 to drive economic growth, create jobs and improve the standard of living for all Tasmanians. Two pillars of the strategy relevant to this project are job creation and workforce development, and actively pursuing overseas and interstate migration through job and training opportunities (while also retaining Tasmania's best and brightest local talent).

5.3 Local government

5.3.1 NTDC 2019 Regional Economic Development Strategy

The Northern Tasmania Development Corporation Limited (NTDC) is the regional economic development agency owned by seven councils in Northern Tasmania. It released a Regional Economic Development Strategy in 2019, which sets out a vision for the north and identifies where future economic growth and employment is likely to come from. The strategy is centred around six key themes with specific targets (all which would be supported by this project):

- **Population growth:** The strategy indicates 10,000 additional workers are required to meet the needs of a growing economy, including those with skill sets to meet demand from industries, including food and beverages services and food product manufacturing.
- **Innovation:** Innovation is necessary to achieve a higher-value economy with more, higher-paying jobs. Key priority areas include enhancing skills and expertise to support growing industries and building a regional innovation ecosystem to support business.
- **Investment:** NTDC aims to develop and implement a plan to attract additional capital for private sector support. Key priority areas include advocating at a regional level for investment in priority public infrastructure projects.
- **Participation and productivity:** implement supporting programs to strengthen transitions to vocational training or higher education linked to the workforce; advocate for trials and pathways for disadvantaged cohorts; collaboration on relevant education and health programs; and enable the transition of businesses into new growth industries.
- **Infrastructure:** High quality infrastructure provides opportunities to attract investment and connect regional businesses to the rest of the state, nation and a growing global marketplace.
- **Increasing exports:** An increase of 45 per cent from current levels over the life of the strategy would significantly reduce the $1.4 billion a year gap between the region's exports and imports. Food systems and tourism are identified areas for increased export opportunities.

6. Market considerations

6.1 Market sounding and feedback

In 2015, RDS Partners undertook a stakeholder consultation survey to test the concept of FermenTasmania and the project with industry stakeholders to understand how the initiative could benefit regions and sectors in Tasmania and throughout Australia.

The survey received 98 responses. They indicated strong support for the concept. Most participants—73 per cent—responded 'yes' when asked whether a world class fermentation centre (the project) would be beneficial for their business or sector, with 21 per cent responding 'maybe'. Only 6 per cent thought there would be no benefit.

The following views of survey participants are among the several pertinent responses collected as part of the survey:

> *'There is a significant hole in the level of understanding and engagement of fermentation processes used within the food and beverage sectors. Tasmania's fast emerging industries of sparkling wine, cider, craft beer and cheese production are all heavily reliant on fermentation. This is a great opportunity for Tasmania to lead the world in interdisciplinary research, application and knowledge sharing.'*
>
> *'We are on the cusp of a 'revolution' in the types of food products consumers will soon demand. Fermented food being just one of these product areas. A Fermentation Centre could underpin this "new' industry".'*
>
> *'It has the potential to mitigate food safety concerns that have been dogging the manufacture of salami and similar products for years. Each batch costs in the vicinity of $100 to test making the production of small amounts non-viable for small enterprises.'*
>
> *'With other industries failing, I believe Tasmania should be capitalising on the premium food and beverage opportunities. I also think this needs a holistic approach; making/growing the best products, research and innovation, extension, selling these products and using them to promote tourism to Tasmania.'*
>
> *'Typically, alcoholic and malolactic fermentation research, both pure and applied, has been dominated by European suppliers and producers. The opportunity to develop partnerships with international suppliers to undertake research that is focused on Tasmanian issues is a huge one. To direct research that will lead to greater knowledge in the Tasmanian sparkling sector, driving down cost and production times will lead to a more viable industry. Collaborative approaches benefit all, particularly smaller producers who can minimise overhead costs.'*
>
> *'Having the ability to test production would allow me to embark on wholly Tasmanian products, utilising wild microbes, plant and animal foods. The potential for regulatory bodies to be more informed on the matters at hand would allow the market to expand. Regular meetings with peers would encourage experimentation and refinement, thus creating a community rather than individuals with no contact.'*
>
> *'Access to industry mentors – this would be of enormous assistance to new businesses. One of the difficulties I have experienced is finding supporting businesses i.e. packaging. Access to equipment or more precisely a fully equipped commercial kitchen which can be leased on a daily/hourly basis for test batches etc. An island (Tasmanian) industry association specifically for small boutique foods and beverage producers would be helpful – both from a peer to peer support perspective but also to provide a cohesive marketing capability. There are a huge number of small producers trying to deliver high quality produce/value add products to the market and all would benefit from a more cohesive approach.'*

The report by RDS Partners on the stakeholder consultation survey is attached as Appendix A.

Workforce skills and training requirements

In September 2018, FermenTasmania was funded by the Department of State Growth through Skills Tasmania to undertake a project to support workforce planning and development. The project established clear need for workforce development activities across the entire value chain of fermentation-focused enterprises.

The project identified that the growth of the fermentation sector over the next three to five years will require around 350 new positions to be filled, comprising around:

- 100 management/leadership roles
- 100 specialist roles
- 150 operations roles.

Interviewees of the project indicated a strong preference for workforce development to be focused on the operations and specialist categories.

National and international partnerships

Several organisations in Australia and internationally are strongly alignment with the objectives of the project and have indicated an interest in formalising partnerships and other linkages. Many of these organisations have demonstrated the benefits of supporting additional value-adding to primary produce through fermentation. The ways they offer support are through product development, research, and skills development and training.

Updated demand assessment

An updated demand assessment of the project has commenced to estimate the impact of Covid-19. The assessment will include several interviews and a survey of potential customers to understand their change in demand for the project and their willingness to pay.

6.2 Potential customers

Nine potential customer segments have been identified through previous investigations and stakeholder engagement (Table 6.1). The segments are:

- enthusiastic amateur
- aspiring/existing employee
- aspiring/new business owner
- existing SME owner
- research provider
- training provider
- technical tourism provider
- supplier
- government agency

Table 6.1: Customer segments of the project

Customer segment	Customer needs	Support by the project
Enthusiastic amateur	• Improve their production practice	**Skills and training** • Facilitate practical courses • Design and deliver information sessions • Set up a helpline
Aspiring/existing employee	• Improve their production practice • Gain qualifications • Grow their professional network	**Skills and training** • Conduct skill needs analysis • Provide liaison with training providers • Facilitate technical courses • Design and deliver information sessions • Design and host industry get-togethers
Aspiring/new business owner	• Improve their production practice • Improve their business practice • Improve their marketing practice • Gain qualifications • Grow their professional network • Learn from others' experience	**Skills and training** • Conduct skill needs analyses • Provide liaison with training providers • Facilitate technical courses • Facilitate business courses • Facilitate marketing courses • Facilitate a mentor program • Facilitate a visiting expert program • Provide information on developments and trends • Design and deliver information sessions • Design and host industry get-togethers • Design and host an annual conference

Customer segment	Customer needs	Support by the project
Existing SME owner	• Improve their production practice • Improve their business practice • Improve their marketing practice • Gain qualifications • Grow their professional network • Learn from others' experience • Access production equipment • Access analytical equipment and expertise	**Skills and training** • Conduct skill needs analyses • Facilitate industry liaison with training providers • Facilitate technical courses • Facilitate business courses • Facilitate marketing courses • Facilitate a mentor program • Facilitate a visiting expert program • Provide information on developments and trends • Design and deliver information sessions • Design and host industry get-togethers • Set up a helpline • Design and host an annual conference **Product development** • Provide access to production facilities and expertise • Provide access to analytical facilities and expertise • Provide a commercial fermentation-based shopfront **Research and development** • Facilitate discussions and prioritisation of research needs
Research provider	• Deliver industry-relevant research outcomes • Obtain research funding • Produce peer-reviewed publications • Enrol undergraduate students • Enrol postgraduate students	**Education and training** • Provide information on developments and trends • Design and deliver information sessions • Design and host an annual conference **Research and development** • Facilitate R&D priority setting • Facilitate interaction and engagement with providers of industry-related research • Provide access to production facilities and expertise

Customer segment	Customer needs	Support by the project
Training provider	• Deliver industry-relevant education and training • Obtain training funding • Enrol students	**Skills and training** • Facilitate the setting of priorities regarding training needs • Facilitate the interaction and engagement with industry-training providers • Design and deliver information sessions • Design and host an annual conference • Provide information on developments and trends
Technical tourism provider	• Deliver technical tourism courses • Obtain income	**Tourism** • Facilitate interaction and engagement with potential students • Facilitate venue availability
Supplier	• Sell services and equipment • Engage with industry and research providers	**Product development** • Facilitate interaction with industry members and researchers • Provide promotion to appropriate suppliers by agreement
Government agency	• Grow regional productivity • Grow regional employment	**Advocacy** • Advocate regarding policy and funding priorities

7. Financial assessment

The purpose of this chapter is to assess the financial viability the project through considering three key questions:

1) What is the likely total cost (capital and operating costs) associated with the project?
2) If customers are not able to pay for the upfront capital costs of the project, what funding might fill this gap?
3) What are the implications of different types of funding options for the project's viability?

This financial analysis was then compared to the results of the demand assessment and customer capacity-to-pay to determine the likely viability of the project.

7.1 Assumptions

The key inputs and assumptions for the financial assessment (see Table 7.1) include:

- project timing assumptions—model start time, evaluation period
- financial assumptions—escalation rates, developing, owning and operating entities
- funding assumptions—customer contributions, Australian and Tasmanian government grant funding, concessional loans.

Table 7.1: Financial assessment assumptions

Component	Assumptions/inputs
Model start date	1 January 2021
Model evaluation period	• 30 years in total • 1 year for design and construction—starting 1 January 2021 and finishing 31 December 2021 • 29 years for commissioning and operations—starting 1 January 2022 and finishing 31 December 2051
Base date for escalating real capital and operating costs and revenues	1 January 2021
Cost of debt	Assumed cost of debt for a not-for-profit entity with loan security of 6 per cent
Escalations	• Where nominal costs are provided: – capital and implementation costs are escalated by 2.29 per cent, the 10-year average annual increase of the ABS Producer Price Index for other heavy and civil engineering construction from FY08 to FY19 – other real costs (including operating costs) have been escalated by 2.5 per cent per annum. This rate has been determined to reflect the midpoint of the RBA's target interest rate range
Pricing	• The annual customer charges will be set to recover costs and be escalated annually to match increases in operating costs. • For this exercise, the annual customer charges will be escalated by 2.5 per cent (the same as operating costs).

7.2 Capital expenditure

The capital cost of the project is $14.9 million (Table 7.2).

Table 7.2: Total upfront capital costs ($ million, excluding GST)

Capex item	Capex ($ million)
Building	7.2

Capex item	Capex ($ million)
Land	0.5
Ancillary works	3.0
Fit-out and equipment	3.0
Project management	0.3
Other	0.1
Contingency	0.8
Total capital expenditure	**14.9**

Source: FermenTasmania, 2020.

This capital will be spent progressively over a 12-month design and construction period.

Additional stages of the project are estimated to cost between $2 million and $3 million. These will be tailored and timed to meet future industry needs and when public and/or private opportunities present.

7.3 Capital funding

The capital expenditure for the project will be funded from three sources:

- the Australian Government
- the Tasmanian Government
- private sector contributions, including in-kind support.

Operating expenditure, including asset maintenance and replacement, will be recovered through lease and operating agreements for facility access, membership fees and rent from training course providers (see section 6.6).

The project's core funding scenario seeks funding for 50 per cent of total eligible project cost from the infrastructure stream of the Australian Government's Building Better Regions Fund—a contribution of $6.4 million. It has been assumed that $12.8 million of capital costs are eligible project costs under the fund.

The balance under the core funding scenario is provided by the Tasmanian Government ($3.4 million) and through in-kind and other private sector contributions ($5.1 million) (Table 7.3). Appendix B includes evidence of the in-kind support secured for the project.

Table 7.3: In-kind and other private sector contributions secured by FermenTasmania ($ million, nominal)

Entity	Item	Contribution ($ million)
West Tamar Council	Land	0.5
West Tamar Council	Ancillary works	3.0
Various suppliers	Fit-out and equipment	1.5
FermenTasmania	Project governance	0.1
Total		**5.1**

Source: FermenTasmania, 2020.

The core funding scenario is the preferred outcome for the project. A second funding scenario has been considered where an Australian Government capital grant has not been secured—or the total capital grant money received from both the Australian and Tasmanian governments is reduced to $3.4 million (23 per cent of total project costs). For the project to proceed under this scenario, a commercial loan of $6.4 million would be required to fund the shortfall, to be repaid over a 30-year period. Loan principle and interest repayments will be met through an annual charge to customers and, as a result, will require either an increase in customer numbers or higher annual charges than under the core funding scenario.

Table 7.4 provides a summary of the capital funding contributions under the core funding scenario and a loan scenario.

Table 7.4: Capital funding contributions ($ million, nominal)

Entity	Contribution ($ million)	
	Core funding scenario	Loan scenario
Australian Government (Building Better Regions Fund)	6.4	-
Tasmanian Government	3.4	3.4
Private sector contributions	5.1	5.1
Loan funds	-	6.4
Total	**14.9**	**14.9**

7.4 Operating expenditure

The annual operating expenditure of the project is expected to be approximately $850,000. This estimate was developed through consultation with experienced operators familiar with the components of the project. Table 7.5 summarises the estimated annual operating expenditure of the project.

Table 7.5: Estimate operating costs ($, excluding GST)

Opex item	Opex ($)
Employee costs (four full-time equivalents)	350,000
Equipment (maintenance, repairs and replacement)	220,000
Building outgoings (rates, water, electricity, insurance, cleaning)	150,000
Marketing and advertising	25,000
Consumables	75,000
Other	30,000
Total operating expenditure	**850,000**

Source: FermenTasmania, 2020

Table 7.6 provides a breakdown of the employee costs for the project.

Table 7.6: Employee costs ($, exc. GST)

Position	Opex ($)
General manager	135,000
Technical operator	85,000
Technical trainee	70,000
Administration officer	60,000
Total employee costs	**350,000**

Source: FermenTasmania, 2020.

Costs associated with a bank overdraft facility to manage cash flow fluctuations through each year is included in under the 'other' line item in Table 7.5. Other options to manage cashflow could be considered prior to operations.

Under the 'with loan' funding scenario, there would be an additional loan expense of $38,407 per month ($460,886 per annum) based on a loan of $6.4 million, an interest rate of 6 per cent and monthly repayments. Under this funding scenario, the annual operating costs would be $1.31 million—an increase of 54 per cent—to be recovered through customers.

7.5 Operating revenue

Operating revenue will be recovered through the commercial arrangements with the four key offerings of the project. In summary, these include:

- product development—leasing space and equipment to emerging and established businesses
- research and education—leasing space and equipment to research and education institutions
- skills and training—charging training providers for space on a per course basis
- agri-tourism—charging providers of tourism experience for space on a per course basis.

Other revenue opportunities may evolve for the project—such as retail and event space hire. These are not seen as core pillars of the project and have therefore been omitted from this analysis. These opportunities could be explored further on a case-by-case basis. They would be required to support of the core pillars of the project.

7.5.1 Revenue apportionment between project pillars

The project is established on full cost recovery of operating costs from the each of the four pillars. To establish the cost to be recovered from each pillar, an estimated usage of the project facilities along with an initial consideration of a customer's capacity to pay has been considered. Table 7.7 summarises the costs to be recovered from each project pillar under a core funding and a loan scenario.

Table 7.7: Costs to be recovered by each project pillar ($, excluding GST)

Project pillars	Contribution (%)	Opex—core funding scenario ($)	Opex—loan scenario ($)
Product development	35	297,500	458,810
Research and development	35	297,500	458,810
Skills and training	20	170,000	262,177
Agri-tourism	10	85,000	131,089
Total operating costs	**100**	**850,000**	**1,310,886**

Source: FermenTasmania, 2020.

A key aspect to the project is securing a research and development organisation to be foundation partner, such as the University of Tasmania and the Tasmanian Institute of Agriculture. Both institutions have provided support for the project with discussion continuing on the potential of a long-term partnership arrangement.

7.5.2 Pricing and number of customers required for revenue targets

For the purpose of this business case, a simple pricing model has been developed to determine the number of customers required to meet each revenue target of the four key pillars of the project. Three different price levels—$10,000 (high), $7,500 (medium) and $5,000 (low)—have been considered to determine customer numbers.

These price levels are considered to be reflective of the capacity of customers to pay. This is based on feedback received by potential customers during initial stakeholder consultation and other similar offerings in the market. An example of the affordability for producing cider under the product development stream is included in Appendix E.

More refined and detailed pricing options will be developed prior to the first year of operations. Further engagement with stakeholders and market research will inform and support the development of the pricing options. This is currently being undertaken to assess the impact of Covid-19.

Table 7.8 summarises the number of customers required for three of the project pillars under three price levels to meet each pillars revenue target under a core funding scenario.

Table 7.8: Pricing and number of customers for revenue target—core funding scenario ($, excluding GST)

Price level	Price per customer ($)	Number of customers[a]			
		Product development	Skills and training	Agri-tourism	Total
High	10,000	30	17	9	**56**
Medium	7,500	40	23	12	**75**
Low	5,000	60	34	17	**111**

[a] *Number of customers rounded up.*

Under a medium price of $7,500 per customer, a total of 75 customers each year would be required under the core funding scenario, consisting of:

- 40 customers for product development
- 23 customers for skills and training
- 12 customers for agri-tourism.

Achieving the above number of customers at a price of $7,500 per customer will raise the required revenue for these three project pillars of $552,500 in total.

This will be supported by a $297,500 from research and development customers (e.g. University of Tasmania and the Tasmanian Institute of Agriculture) to raise the $850,000 annual operating budget under a core funding scenario.

Table 7.9 summarises the number of customers required for three of the project pillars under three price levels to meet each pillar's revenue target under a loan scenario.

Table 7.9: Pricing and number of customers for revenue target —loan scenario ($, excluding GST)

Price level	Price per customer ($)	Number of customers[a]			
		Product development	Skills and training	Agri-tourism	Total
High	10,000	46	27	14	**87**
Medium	7,500	62	35	18	**115**
Low	5,000	92	53	27	**172**

[a] *Number of customers rounded up.*

Under a medium price of $7,500 per customer, a total of 129 customers each year would be required under the loan scenario, comprising of:

- 69 customers for product development
- 40 customers for skills and training
- 20 customers for agri-tourism.

Achieving the above number of customers at a price of $7,500 per customer will raise the required revenue for these three project pillars of $852,076 in total.

This will be supported by $458,810 from research and development customers (e.g. University of Tasmania and the Tasmanian Institute of Agriculture) to raise the $1.31 million annual operating budget under a loan scenario.

Under the loan scenario, an alternative approach to meet the require revenue targets would be to increase the price per customer to $11,361 based on a total of 75. This compares the required price increase ($3,861, 50 per cent) if the same number of customers under the core funding scenario were achieved (with a medium price of $7,500 per customer).

7.6 Other operating revenue

There are several opportunities for additional revenue to be raised by the project with no or minimal additional overhead. This additional revenue will support funding operating expenditure and improve the operating viability of the project. These additional revenue streams may include:

- Event hosting and management
- Room hire
- Bulk procurement and resale of production inputs
- Cellar door and other retail sales.

These options will be explored further during the operations phase. Options that would complement and not impact the delivery of the core purpose of the project will only be considered.

7.7 Discussion

Securing a foundation partner

- A key aspect to the project is securing a research and development organisation to be foundation partner. The research and development pillar of the project is modelled to recover 35 per cent of the annual operating costs of the project.
- The University of Tasmania and the Tasmanian Institute of Agriculture have provided support for the project and discussions continue on their level of support, including the opportunity to enter into an initial five-year partnership and lease arrangement.
- It is recommeded that these commitments are formalised prior to construction to significantly improve the financial viability of the project.

Project capacity issues

- There is a limit to the number of customers that the design for the project can accommodate. Under the loan scenario, the capacity of the facility would be close to capacity—or even exceeded—to meet revenue targets. This would have an impact on the ability of the project to operate and would reduce the demand for the services.

Customer's capacity to pay

- The three different price levels —$10,000 (high), $7,500 (medium) and $5,000 (low)—considered in the analysis are reflective of the capacity to pay of customers. This is based on feedback received by potential customers during initial stakeholder consultation and other similar offerings in the market.
- If prices were to be set higher to meet revenue targets and recover cost, demand for the facilities service would reduce and require further price increase (which would have a significant impact on the project's viability).

Demand assessment

- Initial stakeholder consultation and feedback from the market indicate strong demand for the opportunities offered by the project. The demand assessment is being updated following the impacts of Covid-19.
- Forecasted demand indicates strong confidence that the number of customers required to meet revenue targets under the core funding scenario would be achieved. However, there would be significant challenges to meet the required customer targets under a loan scenario (e.g. capacity issues, low confidence that the demand would exist) and it would potentially be unachievable.
- More refined and detailed pricing options will be developed prior to the first year of operations. Further engagement with stakeholders and market research will inform and support the development of the pricing options.

8. Economic assessment

An economic assessment was done to investigate the economic costs and benefits related to the construction and operational phases of the project.

The following approach was adopted to undertake the economic assessment:

- Identify all cash flows to be considered for the project.
- Where economic impacts are material and measurable, quantify the economic benefits and costs (i.e. net cash flows) relative to the base case.
- Estimate the net economic impact, in terms of both the benefit–cost ratio and net present value of the project relative to the base case.

The economic costs and benefits are considered independently of the financing of the project. The economic cost–benefit analysis measures the net economic benefit over time, and then converts it to today's dollars using an appropriate discount rate.

8.1 Assumptions

The key assumptions for this cost–benefit analysis are consistent with the Australian Government's guidance and information on preparing an economic cost–benefit analysis for the Australian Government's Building Better Regions Fund program[1]. These assumptions are:

- a real discount rate of 7 per cent, with sensitivity analysis at 3 and 10 per cent
- a study period of 30 years
- commencement of the modelling on 1 January 2021.

8.2 Base case

The base case for the project considers the 'without project' scenario.

Under this scenario, many of the barriers to develop fermentation-based products, business and industry will remain and prevent establishing and/or reaching their full potential.

The analysis has considered the net impact of the project when calculating the project's benefits and costs—for example, considering the benefits and costs under the 'without project' scenario.

As a result, a 'nil' base case has been considered for the purpose of the analysis. This may be viewed as a conservative assumption, as without the project, there may be a decline in the performance of existing fermentation-based businesses due to a deficiency of industry support and the lack of appropriately skilled and available labour resources.

8.3 Economic benefits of the project

Five direct economic benefits have been considered as part of the analysis:

- establishing and/or growing fermentation-based businesses (including the development of new products by existing businesses)
- facilitating an increase in participation in higher education
- increasing productivity through skills and training of employees
- offering agri-tourism experiences for local and regional visitors
- residual value of the project.

[1] https://www.business.gov.au/-/media/Grants-and-programs/BBRF/BBRF-Round-4-Cost-Benefit-Analysis-Fact-Sheet-PDF.pdf

The project will deliver other economic benefits. However, those benefits have been excluded from the analysis, as it is difficult to quantify and value them. Therefore, this analysis is viewed as a conservative assessment of project benefits.

8.3.1 Product development—establishing and/or growing fermentation-based businesses

The project will enable new and existing businesses to develop, market-test and commercialise fermentation-based components of their business. The project will enable these businesses to de-risk, have greater confidence and remove barriers to develop aspects of their business to grow, add value, improve profitability and diversify.

Examples of circular economy businesses that would benefit from the product development are:

- an existing vegetable producer adding value to produce deemed to be below 'supermarket' quality through preserving techniques, such as pickling, that could generate a greater return than the alternative option of produce being used for fodder for livestock
- an entrepreneur wishing to develop a special flavoured kombucha to sell at a local market
- a fruit berry business wishing to complement its existing business offerings through developing a berry liqueur with waste product.

Estimating the benefit resulting from the customers of the project is difficult, due to the uncertainty of the potential benefit and the rate of commercial success of the customers of the project. The assumptions below are viewed to be conservative and are based on previous experience and understanding of the performance of similar businesses in the industry and the current market opportunities.

This analysis has used the number of customers outlined in Table 7.8 under a 'high price level' scenario of 30 customers. These customers would be required to pay $10,000 per annum on average to use the project's facilities to meet revenue targets. This analysis is considered to be a conservative estimate of customer numbers, because:

- initial stakeholder feedback indicates strong demand from potential customers
- a lower price would require more customers to meet revenue targets.

Not all customers will be successful in generating a profitable component to their business. This analysis has estimated that 75 per cent of customers will be successful in generating a profitable new business or segment to an existing business. It is forecast that for those successful businesses, an annual net benefit of $20,000 will be generated over a five-year period—that is, $100,000 in total.

Table 8.1 outlines the estimated benefits of establishing and/or growing fermentation-based businesses for the project.

Table 8.1: Benefit of establishing and/or growing fermentation-based businesses resulting from the project

Item	
Number of customers per annum[1]	30
Percentage of customers that are successful	75%
Average annual net benefit of successful outcome	$20,000
Duration of benefit	5 years

[1] *Demand is based on a 'high price level' to meet the revenue target. This is a conservative (low) demand assessment.*

8.3.2 Research and development—facilitating an increase in participation in higher education

The main benefit from the project facilitating an increase in participation in higher education is the income benefits to new students. This income benefit (or increase in salary) is typically adopted as a measure of increased levels of productivity and living standards resulting from participation in higher education.

The project provides a unique alternative offering for higher education. This opportunity is attractive to many students because of:

- the course structure (e.g. being hands-on, having practical application)
- exposure to leading-edge technology and industry professionals
- the pathway to employment opportunities in developing fermented-based industries.

The largest estimated benefit from this aspect of the project is an increase in the lifetime earnings for new students who would not have otherwise obtained a similar level of higher education. This benefit represents the higher lifetime earnings and employability for Tasmanian, interstate and international students who remain in Australia and only obtain higher education as a direct result of the project.

Another benefit considered is the net increase in lifetime earnings for students undertaking further study (e.g. acquiring more skills after completing other higher education).

The project will allow an increase in demand for courses offered by partnering tertiary institutions (e.g. University of Tasmania) that will utilise the project facilities for teaching and research.

For the purpose of this analysis, it is challenging to assess the economic benefit relating to tertiary institutions utilising the project's facilities during undergraduate and post-graduate degrees. A conservative approach has been adopted for this analysis. It focuses on the benefit from students who would not have obtained higher education without the project (new students) and those students undertaking additional study (additional study students).

It is estimated that around 20 students per annum will enrol in higher education courses that will leverage the project's facilities. It is assumed that:

- 20 per cent—or 4 new students per intake—would not have enrolled and completed higher education without the project
- 20 per cent—or 4 additional study students per intake—have existing higher education qualifications but expanding their skills and expertise by completing another course will enable them to command a higher wage.

The remaining 60 per cent of students would have received higher education qualifications under a 'without project' scenario.

Table 8.2 outlines the projected new and additional study students for the project and the average annual increase in salary.

Table 8.2: Projected new and additional study students for the project, and average annual salary increase

Item	
Number of students per course	20
Course duration	2 years
New students (% of intake)	4 students (20%)
Additional study students (% of intake)	4 students (20%)
New student—increase in salary per annum[1]	$17,160
Additional study student—increase in salary per annum[2]	$8,580

[1] *Based on ABS, Characteristics of Employment, Australia, August 2019, cat. no. 6333.0, Median Weekly Earnings by Highest Educational Qualification. It shows the difference in average earnings between employees with advanced diploma/diploma qualifications and no post-school qualifications.*

[2] *The increase in salary of a student undertaking additional study is estimated to be 50 per cent of the increase of a new student.*

8.3.3 Skills and training—increasing productivity through skills and training of employees

Training can contribute to increased productivity. Employees provide greater output if productivity and efficiencies increase—which is a significant benefit to an employer. Training can be both role-specific and/or general occupation and trade. The project will make skills and training course more accessible and tailored for employees of fermentation-based businesses.

Many of the skills and training courses will develop skills that are transferable between different types of businesses—making the course relevant to many different businesses and increasing the employment options for attendees. This may lead to a development of a pool of employees that may be transferred between industries to meet labour requirements during peak and seasonal demand periods. There will therefore be an opportunity to create more secure patterns of annual employment rather than seasonal work opportunities. Benefits will also flow to employers from trained and experienced staff returning to their businesses as they remain in the region due to complementary, out-of-season work opportunities.

This analysis has used the number of courses outlined under a 'high price level' scenario—that is,17 courses per annum (section 8.3.1). This is considered to be a conservative estimate of the number of courses to be delivered. It is estimated that each course will have 10 attendees.

The average net benefit of the skills and training course is estimated to be $750 per annum per attendee. It is expected that this benefit would be realised for a period of five years.

Table 8.3 summarises the estimated outlines attendees for skills and training courses and estimated benefit for the project.

Table 8.3: Projected attendees for skills and training courses and estimated benefit for the project

Item	
Number of attendees per course	10
Number of courses per annum[1]	17
Total attendees per annum	170
Benefit to employer/employee per annum	$750
Duration of benefit	5 years

[1] *Demand is based on a 'high price level' to meet the revenue target. This is a conservative (low) demand assessment.*

8.3.4 Agri-tourism—experiences for local and regional visitors

With both the net financial benefit derived by the experienced facilitator (producer surplus) and the difference between the price that consumers pay and the price that they are willing to pay (consumer surplus)[2].

This assessment has considered nine experiences to be offered each year, with an average attendance of 10 people (90 people per annum). A total producer and consumer surplus of $200 per customer is estimated. These have been reduced from initial estimates following the impact of Covid-19 and the potential decline to Tasmania's visitor numbers.

Table 8.4 outlines the projected attendees, agri-tourism experiences and estimated benefit for the project.

Table 8.4: Projected attendees at agri-tourism experiences, and the estimated benefit for the project

Item	
Number of attendees per experience	10
Number of experiences per annum[a]	9
Total attendees per annum	90
Benefit of experience to attendee per annum	$200
Duration of benefit	1 year

[a] *Demand is based on the 'high price level' to meet the revenue target. This is a conservative (low) demand assessment.*

8.3.5 Residual value of the project

The residual value of the project is estimated to be 40 per cent of the total capital cost of the project at the end of the 30-year assessment period (Table 8.5).

[2] If an experience costs $200 per attendee and an attendee would have paid $400, a consumer surplus of $200 would exist—the additional benefit over and above the experience price.

Table 8.5: Residual value of the project

Item	
Percentage of total capital cost of project	40%

8.3.6 Total benefits of the project

Table 8.6 summarises the total and present value of the benefits over the 30-year assessment period. The present value of benefits has been calculated using a 7 per cent discount rate.

Table 8.6: Total project benefits

Item	$ million (total)	$ million (present value)
Product development—establishing and/or growing fermentation-based businesses	60.8	22.1
Research and development—facilitating an increase in participation in higher education	38.9	10.1
Skills and training—increasing productivity through skills and training of employees	17.2	6.3
Agri-tourism—experiences for local and regional visitors	0.5	0.2
Residual value of the project	5.9	0.8
Total	**123.3**	**39.5**

8.3.7 Benefits not included in analysis

Several benefits have been excluded from the analysis due to difficulties in valuing and quantifying the changes.

Those benefits that have not been considered in the analysis include:

- increased employment opportunities from new and expanded business through the development of fermentation-related products
- increased non-fermented product revenues resulting from the development of the complementary fermentation-based products in the circular economy
- existing students increasing their willingness to pay for higher education due to the improved facilities (i.e. improved amenity and learning outcomes as a result of the project)
- international students and attendees of training courses being attracted to the region as a result of the project
- an increase in tax revenue from higher incomes plus the reduction in welfare payments
- additional benefits from increased tourist numbers and spend as a result of agri-tourism experiences.

Excluding these benefits from the analysis will underestimate the economic net present value and benefit–cost ratio of the project. Therefore, the analysis is viewed as a conservative estimate of the project's benefits.

8.4 Economic costs of the project

The two economic costs of the project considered for the analysis (see Chapter 7) are:

- upfront capital costs
- annual operating costs.

Table 8.7 summarises the total and present value of the benefits over the 30-year assessment period. The present value of benefits has been calculated using a 7 per cent discount rate.

Table 8.7: Total project costs

Item	Total ($ million)	Present value ($ million)
Capital construction costs	14.87	13.90
Operating costs	24.65	9.75
Total	**39.52**	**23.65**

8.5 Cost–benefit analysis results

The core economic is calculated using a real discount rate of 7 per cent. As set out above, the total present value benefits are $39.5 million, and the total present value costs are $23.7 million. Therefore, the benefits exceed the costs by $15.9 million. The ratio of the benefits to the costs (benefit-cost ratio) is 1.7.

Table 8.8 sets out the core economic scenario, as well as two alternative scenarios—a discount rate of 3 per cent and 10 per cent. A higher discount rate reduces the value of future benefits but has a smaller impact on costs.

Applying a higher discount rate, the net present value is $6.2 million, and the benefit–cost ratio is 1.3. The project has a net present value of $42.1 million and the benefit–cost ratio of 2.4 under the lower discount rate.

Table 8.8: Project net economic benefits and benefit–cost ratio

Item	Low economic discount rate (real 3%)	Medium economic discount rate (real 7%)	High economic discount rate (real 10%)
Total benefits ($ million)	72.3	39.5	27.0
Total costs ($ million)	30.3	23.7	20.8
Net benefits ($ million)	**42.1**	**15.9**	**6.2**
Benefit–cost ratio	**2.4**	**1.7**	**1.3**

8.6 Sensitivity analysis

Some of the key parameters were varied to understand the sensitivity of the inputs to the overall results. All sensitivities recorded a positive economic net present value and a benefit–cost ratio of greater than one. The following 11 sensitivities were assessed (Table 8.9):

- upfront capital costs increase/decrease by 10 per cent
- annual operating costs increase/decrease by 10 per cent
- salary for new and additional study students increase/decrease by 10 per cent
- product development customer numbers increase/decrease by 10 per cent
- no residual value of project
- pessimistic scenario—upfront capital costs increase by 10 per cent, annual operating costs increase by 10 per cent, salary for new and additional study students decrease by 10 per cent, product development customer numbers decrease by 10 per cent and no residual value of project.

Table 8.9: Sensitivities—net economic benefits and benefit–cost ratio

Item	Economic net present value (real 7%) ($ million)	Benefit–cost ratio
Central case	15.9	1.7
Capital costs increase by 10 per cent	14.5	1.6
Capital costs decrease by 10 per cent	17.3	1.8
Annual operating costs increase by 10 per cent	14.9	1.6
Annual operating costs decrease by 10 per cent	16.9	1.7

Item	Economic net present value (real 7%) ($ million)	Benefit–cost ratio
Increase in average salary increase by 10 per cent	16.9	1.7
Increase in average salary decrease by 10 per cent	14.9	1.6
Product development customer numbers increase by 10 per cent	18.1	1.8
Product development customer numbers decrease by 10 per cent	13.6	1.6
No residual value of project	15.1	1.6
Pessimistic scenario	8.8	1.3

8.7 Additional economic impacts

The impacts to the economy extend further than just the direct effect of the construction expenditure (and other types of expenditure) due to the strong links with other segments of the economy. This additional impact is measured through multipliers. Multipliers are either:

- production created—all outputs and employment are required to produce inputs for construction
- consumption created—demand for additional goods and services increases due to increased spending by wage and salary earners across all industries arising from employment.

For this assessment, multipliers have been developed through an input–output model derived from the local economy microsimulation model by National Institute of Economic and Industry Research (NIEIR). NIEIR modelling draws on many data sources to offer the most refined data possible at the local level.

An input–output model is a measure of how industries in an area are interlinked. Every industry has a supply chain within the local and wider national economy, and changes in one industry affect the suppliers and customers of that industry, as well as the wider consumption of products in the community. The matrix quantifies these effects and estimates the flow-on effects of gaining or losing jobs, and what impact it has on other parts of the economy.

8.7.1 Impact of construction on output

The combination of all direct, production and consumption effects of the $14.9 million of construction expenditure results in an estimated increase in output of $30.2 million, a multiplier of 2.03.

An amount of $19.5 million of the estimated increase in output is forecast to be captured in the Launceston municipality.

The project will be required to align all procurement with the Tasmanian Government's Buy Local Policy.[3] It will maximise the involvement for local content during construction—which will further support the project's positive economic impact in the local region. As a result, the above estimate of increase output for the Launceston municipality may be understated.

8.7.2 Impact on construction on employment

During the construction phase of the project, 94 direct and indirect jobs in total will be generated. Of these, 46 jobs would be direct, and 48 jobs would be in production support roles and in roles related to consumption. This represents an employment multiplier of 2.03. An estimated 66 jobs will be located in Launceston and 43 jobs are forecast to be filled by Launceston residents.

Alignment with the Tasmanian Government's Building and Construction Training Policy[4] will maximise the opportunity for trainees and apprentices. The policy requires that a minimum of 20 per cent of the total labour

[3] http://www.purchasing.tas.gov.au/Documents/Buy-Local-Policy---A-Guide-for-Government-Agencies.PDF.
[4] http://www.skills.tas.gov.au/__data/assets/pdf_file/0018/166410/Tasmanian_Government_Building_and_Construction_Training_Policy.pdf

hours worked on-site and off-site on a building or construction project equal to or in excess of $250,000 in value be undertaken by apprentices or trainees under a contract of training in a vocation directly related to the building and construction industry.

8.7.3 Impact of operations on output

The combination of all direct, production and consumption effects of the annual $0.85 million of operating expenditure results in an estimated increase in output of $2.1 million, a multiplier of 2.44.

$1.1 million of the estimated increase in annual output is forecast to be captured in the Launceston municipality.

9. Implementation plan

The implementation plan has been developed on the basis that funding support is received from the Australian and Tasmanian governments in accordance with the core funding scenario. Under that scenario, the Australian Government contributes $6.4 million (43 per cent of capital costs), the Tasmanian Government contributes $3.4 million (23 per cent) and $5.1 million (34 per cent) is provided in-kind and other contributions from the private sector (outlined in Chapter 7).

9.1 Roles and responsibilities

9.1.1 FermenTasmania

FermenTasmania will develop, construct and operate the project, including owning the project assets.

FermenTasmania has established a skills-based board comprising of eight directors to oversee the development and operation of the project. The board consists of members with significant relevant experience both in delivering similar projects and in the food and beverage industry.

The board has appointed a chief executive officer to manage the day-to-day operations and implement the strategic initiatives of FermenTasmania. FermenTasmania will engage a project manager to deliver the development and commissioning of the project, including tendering and construction oversight.

During operations, four staff will be employed to support the facility—a general manager, a technical operator, a technical trainee and an administration officer.

9.1.2 Australian and Tasmanian governments

The Australian and Tasmanian government will provide financial support to the project. Funding will be provided in the form of project milestones payments, which will be determined upon confirming a funding agreement. Milestone payments may include:

- A construction contract has been awarded.
- A project partner, in-kind support and/or foundation customer has been secured.
- Construction has commenced.
- 25, 50 and 75 per cent of construction has been completed (based on quantity).
- The project has been commissioned.
- Operations have commenced.

9.2 Approvals

Several legislations and regulations (and their subsequent approvals) will need to be considered when developing and operating the project. These are development applications, planning approvals and building approvals, which are governed by the following legislation:

- *Land Use Planning and Approvals Act 1993*
- *West Tamar Interim Planning Scheme 2013*
- *Building Act 2016*
- *Building Regulations 2017*
- other relevant legislation and regulations.

Specific legislations and regulations relating to the food and beverage industry include the:

- *Food Act 2003*
- Food Safety Standards (Chapter 3 of the *Food Standards Code* by Food Standards Australia New Zealand)

- *National Construction Code 2016—Building Code of Australia* including Tasmanian Appendix H102
- *Building Act 2016* and associated regulations
- *Australian Standard: Design, construction and fit-out of food premises*—AS 4674—2004
- *Australian/New Zealand Standard: Interior and workplace lighting Part 1: General principles and recommendations*—AS/NZS 1680.1:2006
- *Australian/New Zealand Standard: Interior lighting Part 2.4: Industrial tasks and processes*—AS/NZS 1680.2.4:1997
- *Australian Standard: The use of ventilation and air-conditioning in buildings Part 2: Ventilation design for indoor air contaminant control (excluding requirements for the health aspects of tobacco smoke exposure)*—AS 1668.2—2002
- *Australian/New Zealand Standard: The use of ventilation and air-conditioning in buildings Part 1: Fire and smoke control in multi-compartment buildings*—AS/NZS 1668.1:1998
- *Australian/New Zealand Standard: Slip resistance classification of new pedestrian surface materials*—AS/NZS 4586:2004.

A strong engagement with the environmental health officers of the West Tamar Council is a key component of ensuring the requirements are met.

9.3 Schedule

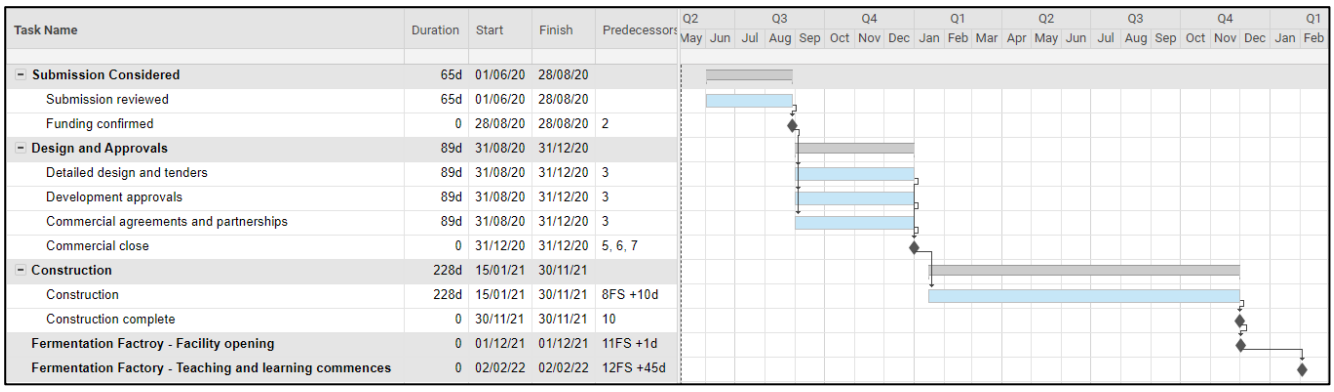
Table 9.1 summarises the key milestones to be achieved for the project.

Table 9.1: Timeline for key milestones

Milestone	Target date
Funding confirmed	August 2020
Construction commences	January 2021
Fermentation hub—facility opens	November 2021
Fermentation hub—teaching and learning commences	January 2022

Figure 9.1 outlines the project schedule in a Gannt chart.

Figure 9.1: Project schedule



9.4 Risk management

The risk management framework for this project is aligned with Australian Standard AS/NZS ISO 31000:2009 Risk Management—Principles and Guidelines (outlined in **Error! Reference source not found.**). Table 9 2 outlines the key risks identified for the project, which will be monitored and updated through the life of the project.

Table 9 2: Project risk register

Ref. no.	Risk category	Risk	Pre-control rating			Mitigation strategy	Post-control rating		
			Consequence	Likelihood	Risk level		Consequence	Likelihood	Risk level
1.	Financial	Customer targets are not met, leading to insufficient revenue to meet costs	Catastrophic	Likely	Extreme	• Foundation customer/s will be secured for most of the revenue for several years prior to construction • Detailed assessment will demonstrate demand and willingness to pay for products and updated Post-Covid-19 • Products will be flexible to be meet demand • Appropriate governance arrangements will oversee operating and cashflow management to monitor financial performance • Incentives for long-term offerings will be provided • A low operating overhead model will be adopted without the requirement for ongoing funding from the Australian and Tasmanian governments	Major	Unlikely	Medium
2.	Financial	Capital cost overrun during construction or time delays for completion	Catastrophic	Likely	Extreme	• Sound and current cost estimates have been developed for the business case • A suitable contingency allowance will be included in cost estimates • Appropriate contracting arrangements will ensure clear scope and responsibilities to limit the opportunity for variation claims • Appropriate governance arrangements will oversee development and cashflow management to monitor financial performance and delivery • The timeframes for the delivery of the project will be adequate	Moderate	Possible	Medium
3.	Financial	Government funding support not secured	Catastrophic	Likely	Extreme	• Federal and Tasmanian government ministers and departments will be briefed • Industry support will be demonstrated with stakeholder engagement • A robust business case outlines the project benefits	Major	Possible	High

Ref. no.	Risk category	Risk	Pre-control rating			Mitigation strategy	Post-control rating		
			Consequence	Likelihood	Risk level		Consequence	Likelihood	Risk level
						• The project will be aligned with funding and partnering opportunities • The proportion of government funding will be reduced by maximising private sector support (including in kind) • The project development will take place in 'stages', which reduces the level of funding support required			
4.	Safety	Work health and safety incident during construction leading to serious injury	Major	Likely	High	• Assessment criteria for tendering of construction will include an assessment of safety processes and performance • Mandatory assessment criteria of appropriate safety accreditation will apply • The contractor will be monitored during construction of adhering to safety processes with safety audits	Major	Unlikely	Medium
5.	Safety	Work health and safety incident during operation leading to serious injury	Major	Likely	High	• A safety framework (policies, procedures, etc.) will be developed and implemented, with specific focus on high-risk activities (e.g. food preparation, hot liquids and equipment, lifting, high pressures) • Operations will be monitored for adherence to safety processes through safety audits	Major	Unlikely	Medium
6.	Financial	Unable to secure enough in-kind support for the construction (including the fit-out) of the project	Major	Likely	High	• Early engagement is taking place with in-kind supporters (including universities and large businesses) • A binding pre-construction commitment is to be secured from foundation customers • Advertising and promotion opportunities for project supporters will be developed during operations	Major	Unlikely	Medium
7.	Financial	Project partner/s are not secured to be foundation customers of the project	Major	Likely	High	• The project will not proceed in its current form if a foundation customer/s cannot be secured	Major	Unlikely	Medium

Ref. no.	Risk category	Risk	Pre-control rating			Mitigation strategy	Post-control rating		
			Consequence	Likelihood	Risk level		Consequence	Likelihood	Risk level
		leading to increased operating revenue risk				• Early engagement is taking place with potential foundation customers (including universities and large businesses) • A binding pre-construction commitment from foundation customers will be secured			
8.	Financial	Tenders are received that are outside the budget	Major	Possible	High	• Project risk will be allocated appropriately between FermenTasmania and the contractor—the more risk allocated to the contract, the higher their price • Sound and current cost estimates have been developed for the business case • Significant in-kind support will be secured pre-construction (including land and fit-out) • A suitable contingency allowance will be included in cost estimates • The tendering method will be appropriate and therefore ensure an efficient and effective process • Adequate notification and time will be provided for the market to supplier tenders • The delivery timeframe will provide flexibility to the contractor	Major	Unlikely	Medium
9.	Implementation	Unable to achieve approvals in a timely manner, leading to delays in project delivery	Major	Likely	High	• Responsibility for approvals will be split appropriately and clearly between FermenTasmania and the contractor • There will be a detailed scheduling and understanding of timelines and processes related to approvals • Early engagement will take place with regulators, and relationships will be developed with them to understand approval requirements	Moderate	Possible	Medium
10.	Implementation	Unable to attract suitable staff to manage the project during operations	Major	Likely	High	• Attractive remuneration and opportunities will be offered, to attract suitable staff	Moderate	Possible	Medium

Ref. no.	Risk category	Risk	Pre-control rating			Mitigation strategy	Post-control rating		
			Consequence	Likelihood	Risk level		Consequence	Likelihood	Risk level
						• Flexible, job sharing arrangements will be available, to secure skill set required • There will be clear opportunities for career development for staff • The project will be established to be a desired employer with relevant and unique exposure to industry processes and networks			

10. Stakeholder management and communication

A key component of the development of the project has been stakeholder consultation. To date, there has been significant engagement with relevant stakeholders, including government, industry, potential customers and project partners. Various methods of communications will be undertaken as the project develops.

10.1 Objectives

Key consultation and engagement objectives for the project are to:

- engage potential customers in the development and operations of the project
- identify and, where possible, resolve local community issues relating to the project
- maintain open communication with the local community and industry
- keep the Australian and Tasmanian governments, and their respective agencies, informed and abreast of the progress of the project
- ensure that other stakeholders are engaged or informed as appropriate
- identify and classify all stakeholders in order to manage risk
- identify and clarify project risks from external project entities early
- promote participation by stakeholders using planned and targeted communication
- ensure that synergies in communication strategies with related projects and with mutual stakeholders can be achieved.

10.2 Stakeholders

The key stakeholders of the project comprise:

- internal stakeholders—FermenTasmania and existing project partners
- the Australian Government—departmental ministers, elected representative and departments
- the Tasmanian Government—departmental ministers, elected representative and departments
- the local government—West Tamar Council
- potential project partners—the University of Tasmania, Tasmanian Institute of Agriculture, other national and international research institutions, private sector organisations (producers and training providers), and equipment providers
- community and business in the wider circular economy —including potential customers, relevant industry groups, potential contractors, local community groups and the media.

Appendix C provides a detailed summary of these stakeholders.

10.3 Communication methods

A range of communication methods will be used for this project. The effectiveness of the communication methods will be monitored and evaluated through the project. Where appropriate, the support of the Australian and Tasmanian governments will be acknowledged. The key communication methods involve a range of communication channels.

Written materials

- Develop and maintain fact sheets. Minimise the use of project-specific/technical jargon.
- Maintain a relevant and up-to-date suite of reference material on the project website.
- Produce letters to key stakeholders.
- Produce regular updates through emails and newsletters.

- Provide briefing notes to key governance stakeholders to signpost issues and note the achievement of milestones.

Project website

- Manage a specific website promoting interactivity and two-way communication.
- Make public information available online.
- Maintain the currency and relevance of the website.

Forums, briefings, stakeholder meetings

- Hold forums and briefing sessions for industry and for partnering with other relevant organisations, including potential customers and contractors, and the local community.
- Engage one-on-one with key stakeholders and other interested parties.
- Provide targeted, relevant updates on activity to individual stakeholders.
- Ensure that key stakeholders are advised both verbally and in writing of issues that affect them.

Media

- Produce stories to support messages for relevant publications.
- Encourage interest in the project's progress.
- Respond to enquiries in a factual and non-confrontational way.

10.4 Key messages

The following key messages should be incorporated consistently into stakeholder communications for this project:

- The project will enable significant economic benefits from the circular economy and fermented industries to flow to the region (and beyond), create employment opportunities and enhance the Tasmanian reputation as a producer of high-quality food, beverages and tourism experiences.
- The project will support businesses to pursue opportunities for greater security, diversification or expansion.
- The project is being delivered under a robust and sustainable governance framework.
- The project is being developed in collaboration with industry and project partners.
- The project is sustainable—no ongoing public sector financial support will be required.
- The project is built as a public–private partnership.
- The project is a partnership between industry and the Australian and Tasmanian governments, and it has secured appropriate contributions from each project partner.

Appendix **A**

Fermentation Tasmania

Stakeholder Consultation Survey Report

Prepared by RDS Partners Pty Ltd

13 July 2015

RDS Partners is a multi-disciplinary team dedicated to facilitating positive social, economic and environmental outcomes in rural and regional Australia.

We provide services in:

- stakeholder and community engagement;
- organisational and people development;
- industry development and capacity building;
- research, development and extension;
- project management; facilitation and evaluation.

We specialise in projects within the not-for profit and primary industry sectors.

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ABN 33 125 001 452

RDS Partners
land • sea • community

Contents

Background

Over the past few months, a group of industry professionals and researchers has been developing this idea, informed by earlier work by the UTAS Centre for Food Innovation. We see a great opportunity for Tasmania to capitalise on our State's growing reputation as a producer of world-class food and drinks that all have a focussed point of difference - the skilled application of fermentation. It's an ever growing list – beers, breads, cheeses, ciders, pickles and preserves, meats, miso, whiskies, wines, yoghurts . . .

We want to accelerate this transformation to a fine foods-regional foods future and capture more of the associated value and benefits of agricultural production and value-adding in Tasmania.

We're working on the exciting proposition that together Tasmanian industry, academia and government can establish a world-class Fermentation Centre, possibly based in northern Tasmania, for:

- Developing new products for Tasmanian businesses
- Training current and future staff
- Conducting research to benefit individual businesses and wider sectors
- Coordinating consumer education, short courses and other experiences as a tourist drawcard.

Research into similar institutions internationally shows nothing with this multi-sector focus to date.

RDS Partners, in partnership with x, y z, developed an industry survey to test the idea with industry stakeholders and discover how this initiative could benefit regions and sectors in Tasmania.

The survey preamble was:

> *"Islands have a strong, natural competitive advantage.*
>
> *Their naturally implied brand evokes a sense of nature and natural-ness,*
>
> *They are a destination set apart from the rest of the world, intriguing and naturally innovative. Because their economic model is often based around the manufacture of high value, niche products, islands are also synonymous with quality."* (Nick Haddow, Churchill Fellowship report, 2013)
>
> With that in mind, here's an idea worth mulling over . . .
>
> *"What would it take for Tasmania to be recognised internationally as a go-to region of excellence for the design, production and marketing of fine food and drink?"*
>
> Over the past few months, a group of industry professionals and researchers has been developing this idea. We see a great opportunity for Tasmania to capitalise on our State's growing reputation as a producer of world-class food and drinks that all have a focussed point of difference - the skilled application of fermentation. It's an ever growing list – beers, breads, cheeses, ciders, pickles and preserves, meats, miso, whiskies, wines, yoghurts . . .
>
> We want to accelerate this transformation to a fine foods-regional foods future and capture more of the associated value and benefits in Tasmania.

We’re working on the exciting proposition that together Tasmanian industry, academia and government can establish a world-class Fermentation Centre for:

- developing new products for your business,
- training your current and future staff,
- conducting research to benefit our industries, and
- coordinating consumer education, short courses and other experiences as a tourist drawcard.

We'd love to know what you think about:

- What could this mean for your business?
- What could this mean for your region?
- What could this mean for our State?
- How could we do it?

Summary of results

Respondent demographics

Respondents to the survey worked in the following sectors (please note that many respondents worked in more than one sector):

Sector	No. of respondents identified with
Wine	33/96
Cider	16/96
Pickles/preserves	12/96
Whisky	11/96
Beer	9/96
Cheese	8/96
Bread	3/96
Yoghurt	3/96
Other	42/96

Other sectors included kombucha/other beverages and concentrates; meat/charcuterie/smallgoods; vegetables; other spirits/post distillation flavouring; vinegar; and nutraceuticals.

These results show a broad range of representation in the respondents, and also the diversity of applications of fermentation in Tasmania itself.

Other occupations and sectors such as chefs, tourism, food education, government, horticultural products, media and health promotion were also represented in the responses.

Respondents to the survey held an interest in the following areas (again, many respondents indicated an interest in more than one area):

Area of interest	No. of respondents identified with
Production	59/96
Marketing	38/96
Retail	31/96
Tourism	42/96
Hospitality	19/96
Research and development	30/96
Skills and training	38/96
Other	13/96

Other comments revealed the following to also be areas of interests to the respondents: value adding, potential health benefits, selection and quality control and Tasmanian branding. These results show that stakeholders individually hold multiple interests in the different aspects of the fermentation industry.

> *"I know I've ticked a lot of boxes here but I feel that with the training I currently offer there is a huge need for those involved in the front line to be able to sell the idea of Tasmania plus the actual high quality products that we create here."* (Survey respondent).

Do you think a world class Fermentation Centre along the lines described above would be beneficial for your business or sector?

Answer	Number
Yes	71/96
No	6/96
Maybe	19/96

Respondents answered in this way for the following reasons:

Yes

- Production
    - Small scale / experimental production
    - Move beyond current documented systems of food production
    - Selection and quality control
    - Mitigation of food safety concerns
    - Benefits to equipment sharing, especially small businesses / start ups
    - Cider made with real apples, not concentrate
- Marketing / showcasing
    - Value-adding
    - Current opportunities for showcasing are limited to small, sometimes unknown locations
    - Role for FT to support marketing efforts (individual and coordinated)
    - Education needed for business owners – need to know it's not about what the owner likes
- Retail
    - 'Front line' sales – knowledge about products
    -
- Tourism
    - Authentic food experiences
    - Consumer education
- Hospitality
- Research and development
    - Benefits to equipment sharing
    - Take advantage of technology capabilities
    - Communications between research and business
    - Opportunity for Tasmania to lead the world in interdisciplinary research, application and knowledge sharing
- Skills and training
    - 'Front line' sales – knowledge about products
    - For the 'home producer/consumer'
    - Capacity building
    - Consumer education
    - Information provision for customers

    - Education around production could begin in schools (assume primary/high schools) to open up career paths in these industries
- Health benefits/nutraceuticals/consumer education and information
    - On the cusp of a food 'revolution' – fermented foods are part of this
    -
- "Brand Tasmania"
    - Differentiate between Tasmania and mainland Australia
    - Make diversity of products a point of difference – rather than specific 'regions'
    - Showcase Tasmania to the world
    - Concern that it would take considerable brand building to get it into the general consciousness, and might fight with other known brand concepts that have been built and are well recognised as being a strength of Tasmanian and detract from their individual identities.
- Collaboration, synergy and networking
    - Knowledge transfer
    - Innovation
    - Community of practice in Tasmania, so producers not having to travel overseas all of the time
    - Inspire others
    - Goodwill amongst food and wine producers but all facing the same issues: red tape, staffing, production issues etc.
- Industrial and economic development
    - Tasmania concentrating on premium food and beverages as other industries are failing
    - Fermentation Centre could underpin 'new' fermentation industry
- Mentoring
    - Have had difficulty finding someone to teach meat fermentation

Maybe

- Unique idea but would require considerable brand building, and may detract from other brands
- To be able to help improve and build the future of the wine industry. To positively contribute to the long term viability of our industry and the state.
- Many companies in Tasmania do not do marketing well or even understand what marketing is
- Currently, AWRI in SA is the 'go to' place for all things to do with wine making, however having a Fermentation centre in Launceston that covered all the other areas in which fermentation plays an integral part could really focus tourists attention on all the great quality products coming from Tasmanian that involve 'fermentation' in their creation...including wine.
- It depends how it's set up, run and marketed. It could potentially help the wine sector but this is unlikely to trickle down to my business (although others may be able to leverage from it). However if others can demonstrate benefit, good for them! (As long as it doesn't get hijacked by a noisy few, but is inclusive)

- the concept as described builds on existing Tasmanian strengths and capabilities, is collaborative and may achieve scale and focus necessary to succeed at a new level in the market. Further development and investigation of the concept is very worthwhile
- not sure what it has to do with our type of food.
- It would be lovely to have someone to ask some tricky questions about fermentation and the organisms involved.
- We are a moderately large winery and have a full, tertiary trained production staff.
- Beneficial to the food and beverage sector
- Fermentation in the wine industry is already quite settled, with many main stream cultured yeasts available. The other option - wild ferment - simply leaves it to nature (no human input).
- Potentially useful, difficult to definitively say for such an embryonic idea. What we do know more than most is that the existing teaching of fermentation - both at a secondary & tertiary level - is narrow and exclusive, ignoring so much and judging far too much. Group think can be very dangerous! At the small end, I see simple potential benefits in ability to equipment & analysis share - endeavours which are often costly beyond reach of small business. At the very big other end there is the already existing & rapidly growing corporate sector in the US & Europe frantically advancing concepts such as the use of genetically modified fermentation to produce, on industrial scale, things such as diesel. Where & how would a Tasmanian centre interpret, engage, see these types of global endeavours ... ... and then there's a vast middle ground between these two extremes!
- It's too early to say but would depend on how it's developed
- Given authentic food experiences are a main preference for travel, any organisation that will advance that will indirectly feed the tourism industry.
- TIA already provide world class research with links to the AWRI

A small number of respondents (6) reported that they could not see a benefit to setting up a Centre of this type in Tasmania. Reasons for this included:

- I don’t want to increase my volume
- Can't see any benefits direct or indirect. Can't see where the necessary funding will come from. Can't see where 'world class' is going to come from. Sounds too 'touchy feely'.
- I work in mining so there would not be a benefit to my sector. I am interested in the learning's and the centre as a member of the community and a passionate consumer of fermented foods
- Yet another UTas waste of time. Leave these developments to the industry as we do it much better at much less cost.
- Not helpful for my business directly - but a great idea for the state.
- Food industry departments are often behind the times and too scared to try non already documented systems Too restrictive and out of touch with real world possibilities.

Some pertinent quotes from the open ended responses included:

"There is a significant hole in the level of understanding and engagement of fermentation processes used within the food and beverage sectors. Tasmania's fast emerging industries of sparkling wine, cider, craft beer and cheese production are all heavily reliant on fermentation. This is a great opportunity for Tasmania to lead the world in interdisciplinary research, application and knowledge sharing." (Survey respondent).

"We are on the cusp of a 'revolution' in the types of food products consumers will soon demand. Fermented food being just one of these product areas. A Fermentation Centre could underpin this 'new' industry." (Survey respondent).

"It has the potential to mitigate food safety concerns that have been dogging the manufacture of salami and similar products for years. Each batch costs in the vicinity of $100 to test making the production of small amounts non-viable for small enterprises." (Survey respondent).

"With other industries failing, I believe Tasmania should be capitalising on the premium food and beverage opportunities. I also think this needs a holistic approach; making/growing the best products, research and innovation, extension, selling these products and using them to promote tourism to Tasmania." (Survey respondent).

Respondents were asked how this initiative could benefit their region or sector.

- Production
    - Food preservation
    - Great way of minimising waste
    - Less monoculture
    - Value-adding
    - Accelerate the progression of the of the Tasmanian and Australian cider industries to a mature and high quality status
    - Adding additional value and direction
    - Reduce costs associated with the production of salami etc
    - May be able to identify specific yeast strains that are ideally suited to Tasmanian wine
- Marketing / showcasing
    - Partnering with producers gives tremendous scope for market development
    - Niche markets
    - Group marketing can help as long as the individual still stars
    - An exciting story behind the products
    - Pay it forward mentality – selling local produce to punters who then go out to source the goods then learning about other products – the hunt goes on (interest begets more interest)
    - If marketing done correctly Tasmania would be the go to place for produce outside of France
    - It would be newsworthy
    - Integrated with the Fine Food Awards at the Royal Hobart Show
    - Possibility of collaborative marketing
- Retail
    - Much scope for more wine trained people in café/restaurant/cellar door operations. We sadly encounter many such people with little or no wine or sales knowledge and skills and even worse have no passion for Tasmania and Tasmanian produce.
- Tourism
    - Education tourism
    - More good quality food and drink available benefits tourism
    - Municipal council in this town unable to see the value of tourism beyond the two world heritage sites – there are B&Bs, cafes, antiques, free public spaces and an art gallery – tourists do not see
    - Part of larger plan to promote Tasmania as a special place to visit
    - Attract 'gourmet' tourists
    - Anything that increases Tasmania as a food destination can only be beneficial for anyone in the food sector
- Hospitality
    -
- Research and development
    - Innovation supported by science and further research would be very useful
    - Transparency a must
    - Opportunity to undertake research that is Tasmanian focused, not European
    - Improved research design and utilisation of industry knowledge and contacts
- Skills and training
    - Young fermenters starting out, gaining skill sets for the future

    - It fills out the skill and product chain needs
    - Raise the bar for knowledge locally, better employment opportunities
    - Focussed cider specific training would assist in providing skills employees to this growing sector
    - Developing a pool of talent
    - Attract students who want to get into these industries, upskill those already in industries
- Health benefits/nutraceuticals/consumer education and information
    - Demand for quality superfoods almost always exceeds production capacity
    - Use of 'no nasties'
    - Expands the understanding of health benefits in the greater populace
    - Gives people an opportunity to be more informed about what is on offer
    - Not just 'hippyville' – fermented foods for health becoming mainstream
- "Brand Tasmania"
    - Only preserve Tasmanian produce, is a snapshot of the state
    - Tasmania already on the way to establishing a sound reputation for world class food/wine/spirits, awareness around the benefits of fermented food has just begun and this concept would be another opportunity to showcase local products
    - More interest and more producers will create more profile
    - Show leadership and innovation
    - Build on Tasmania being known and able to supply even more interesting quality products
    - A one stop shop – rather than classical 'regions' for food and drink production
    - Greater recognition of quality Tasmanian products
- Collaboration, synergy and networking
    - Currently little opportunity for emerging artisanal cheesemakers to link together and share knowledge
    - Collaborative approach to minimise overheads (particularly smaller producers)
    - Opportunity for collaborative marketing
- Industrial and economic development
    - Regional stimulation/development
    - Allow craft/cottage producers to take the step to becoming small-medium scale producers (technical and market access help)
- Mentoring

Some respondents did not believe that the initiative would be of benefit to their region or sector for the following reasons:

- I think it could help a few businesses but overall it's a minority
- I'm not sure I understand the concept fully, it seems very broad. Do we really think it is possible to achieve all these things successfully, perhaps more specific focus is required?
-

Some pertinent quotes from the open ended responses included:

> *"We only preserve Tasmanian produce, so it is a food snapshot of the state, and the methods we use (no nasties, especially commercial pectin) hark back to older times – something worth celebrating."* (Survey respondent).

"Expanding the understanding of general populace of the benefits of ferments in cuisine, opens the doors for a whole new way of looking at food production and what is acceptable to put on a menu. Allowing people to understand its also a great way of minimising waste, given the vast amounts of food that doesn't make the grade for large chain buyers. Producers may look at growing more interesting smaller crops with less monoculture, this would both help the soil [and] climate and provide more interesting locally produced foods." (Survey respondent).

"Typically alcoholic and malolactic fermentation research, both pure and applied, has been dominated by European suppliers and producers. The opportunity to develop partnerships with international suppliers to undertake research that is focused on Tasmanian issues is a huge one. To direct research that will lead to greater knowledge in the Tasmanian sparkling sector, driving down cost and production times will lead to a more viable industry. Collaborative approaches benefit all, particularly smaller producers who can minimise overhead costs." (Survey respondent).

"I am in favour of this as it could further help to enhance the state's image and attraction as a one-stop shop in the premium food and beverages sectors. The different Tasmanian industries mentioned (wine, brewing, cheese, etc.) are individually achieving great reputations but are largely operating separately in their own interests. Often the "classical homes" of these industries are spread between many other countries/regions (wine – France, whisky – Scotland, etc.) but it would be great for Tasmanian to be recognised more widely as a quality producer of ALL a wide range of products all on our island. Additionally, it would be a feather in the State's educational cap to have such a course. It may attract people from outside Tasmania." (Survey respondent).

"An exciting story – story, passion, sense of place are some of the things that make our products more than commodities. Group marketing can help so long as the individual still stars. People like to discover the individuals behind the stories – they like a sense of discovery and access to hidden treasures." (Survey respondent).

Respondents were asked what would enable their business to become recognised for excellence in the design, production and/or marketing of fine food and drink. Responses

- Access to industry mentors
- Access to suitably trained people
- Access to industry peer groups
- Access to equipment and facilities to try new ideas, new products
- Raising brank and regional awareness
- Maintaining quality along the supply chain.

"Having the ability to test production would allow me to embark on wholly Tasmanian products, utilising wild microbes, plant and animal foods. The potential for regulatory bodies to be more informed on the matters at hand would allow the market to expand. Regular meetings with peers would encourage experimentation and refinement, thus creating a community rather than individuals with no contact." (Survey respondent)

"Access to industry mentors – this would be of enormous assistance to new businesses. One of the difficulties I have experienced is finding supporting businesses i.e. packaging. Access to equipment or more precisely a fully equipped commercial kitchen which can be leased on a daily/hourly basis for test batches etc. An island (Tasmanian) industry association specifically for small boutique foods and beverage producers would be helpful – both from a peer to peer support perspective but also to provide a cohesive marketing capability. There are a huge number of small producers trying to deliver high quality produce/value add products to the market and all would benefit from a more cohesive approach." (Survey respondent).

"We have just registered X as a business name. We believe that Australia has the intellectual and scientific knowledge to take the learnings from past practice into a new generation of pomace based products. We will generate new ideas through that knowledge and our international contacts which could feed a new generation of makers of alcoholic and non-alcoholic pomace producers. We see a multitude of opportunities that we are not in a position to pursue yet are viable and exciting." (Survey respondent).

"Access to equipment and facilities to try new ideas, new products. Maintaining quality along the supply chain. A sustainable nose to snout approach

What do you think could be done to help you reach these goals?

- Space to scale up operations
- Producers sharing commercial-in-confidence partnerships
- Networking and mentoring
- Continuing to reinforce "Brand Tasmania"

- Document organisations with similar interests, resources available, and a clearing house of research
- Championing all things Tasmanian-grown – push that agenda separate to tourism and money alone
- Industry forum
- Money
- Government support
- Community involvement
- Start the conversation, wider consultation (stakeholders and general public)
- Support
- Education
- Time
- Specific training courses
- Access to academics (currently difficult to access)
- Promotion
- Greater management ability in skilled staff – staff skilled in more than one area
- Fermentation centre offering short and medium term project residencies to researchers and industry participants that can use one project outcome to drive the next
- Product development
- A think-tank type forum
- Workshops
- Government assistance
- Co-production facilities
- Strong collaborative arrangements that oblige participants to share the load
- Fully qualified food tech experts
- Have people accessible to answer tricky questions
- Shared facilities to reach economy of scale
- Field days at vineyards and on site education at wineries
- Improve communications
- Making viticulture a desirable industry to work in
- Encouraging and nurturing this new economic force (fermentation)
- Reduce red tape for business start ups
- Technical cooperation between like businesses
- Build a trusting community of practice
- Coordinate what is currently a fragmented system
- Attracting industry professionals from outside the state
- Government funding and a full-time person to coordinate projects across the various industries
- Help businesses to build sustainable business plans

"Research, collaborative marketing, industry collaboration to encourage the government to fund / market the whole sector, not just a specific product, freight and access to markets, joint promotion for premiumisation of "Brand Tasmania".

If you would like to be kept up to date as we progress, please give us your contact details.

Of 96 respondents, 82 provided contact details to be kept up to date on progress.

Social media addresses

46 out of 96 respondents provided social media addresses to keep across this initiative.

Would you be interested in working with us to develop this concept further?

Out of 93 respondents to this question (3 respondents skipped the question):

Yes = 46

No = 11

Maybe = 36

Half of the respondents indicated that they would be interested in sharing their time, knowledge, expertise, passion and enthusiasm to develop a Fermentation Centre in Tasmania.

> *"I see a great opportunity to expand the knowledge and palettes of everyone around me. It's a great step forward if we can in some way benefit community through changing the accosted methods of food production and potentially the overall health of people. I can't wait to be involved. Please keep me posted !!!"* (Survey respondent).

Reasons for respondents answering no included:

- Time constraints
- Not based in Tasmania / spend time away from Tasmania
- Not skilled enough to help
- Unsure in what capacity and from what perspective I can help/not sure what is required from me

Appendix **B**

JUNE 5, 2020

fermentasmania

West Tamar COUNCIL

MEMORANDUM OF UNDERSTANDING

FERMENTATION TASMANIA & WEST TAMAR COUNCIL

KARINA DAMBERGS, CEO
FERMENTASMANIA
2 Bridge Road, Launceston, Tasmania, 7250

MEMORANDUM OF UNDERSTANDING
BETWEEN
FERMENTASMANIA AND THE WEST TAMAR COUNCIL

INTRODUCTION

This Memorandum of Understanding (MOU) between Fermentation Tasmania Limited (ACN 609 538 338; FermenTasmania) and the West Tamar Council (WTC) formalises collaboration between both parties. It is being entered into with the recognition and acknowledgement of the importance of both organisations to the economic development and economic diversification of the Tasmanian economy, as well as the importance of strong links between industry and government in driving business and jobs growth.

The MOU has the objective of contributing to a region that is dynamic, vibrant, and attractive through local government engagement with industry and the broader fermentation ecosystem.

PURPOSE

The purpose of this MOU between FermenTasmania and WTC is to develop further the strong existing relationship between our two organisations and to identify common strategic objectives and areas of interest.

It also establishes the process that will support the identification and effective achievement of a range of projects and activities, detailed in the Schedule attached to this MOU, during the term of this MOU.

GUIDING PRINCIPLES

To effectively realise positive outcomes from this MOU, the West Tamar Council and FermenTasmania will:

- Establish a framework for collaboration between the two organisations,
- Adopt a cooperative approach for mutual organisational and broader community benefit,
- Pursue areas of common strategic interest,
- Actively participate in joint initiatives, projects, and activities, and
- Identify and address common areas of concern that may emerge during the MOU.

GOVERNANCE ARRANGEMENTS

To facilitate working together:

- The Chair, FermenTasmania and the Mayor, West Tamar Council will meet at least annually to identify areas of common strategic interest, and
- The CEO, FermenTasmania and the General Manager, West Tamar Council will meet at appropriate intervals to ensure effective implementation of agreed activities outlined in the attached Schedule.

DURATION OF MOU

This MOU is valid for three years from the date of signing.

SIGNED

West Tamar Council (General Manager)	5/6/20. Date	Fermentation Tasmania Ltd (Chair)	5/6/20. Date

SCHEDULE TO THE 2020-2022 MEMORANDUM OF UNDERSTANDING (MOU)

AREAS OF COMMON INTEREST

The MOU will address, but is not necessarily confined to, matters that fall into the following general areas of mutual interest.

GOVERNANCE AND RELATIONSHIPS

- Developing a joint project plan for the development of a Fermentation Incubator.
- Building partnerships for supporting development of joint proposals for funding bids for agreed developments/initiatives.

THE FERMENTATION INCUBATOR - INFRASTRUCTURE DEVELOPMENT

Developing a purpose-built, state-of-the art fermentation facility (the Fermentation Hub) located at Lot 9, 703 West Tamar Highway, Legana (approximately 10,000 m^2) to inspire and de-risk new product and business development: **taking ideas from concept to pilot to market.**

The West Tamar Highway site is currently estimated at $445,000 with a development cost to Council of approximately $1.2million and is offered:

- On a lease basis with an option for future purchase at market value after 10 years, or
- Offer an initial lease of 10 years at a peppercorn rate and then the option to renew at a commercial rate.

The Fermentation Hub will:

- Be a world-class regional economic driver that assists to position the West Tamar, Tasmania and Australia globally by:
    - generating new fermentation-based businesses and opportunities,
    - supporting research collaborations,
    - encouraging entrepreneurship and innovation,
    - creating tourism opportunities around the making and appreciation of fermented products, and
    - offering skills and training development opportunities to provide new career paths for Tasmanians and to draw interstate and international industry to the West Tamar and Tasmania.
- Showcase the fermentation aspects of food waste management and sustainability through:
    - product development and pilot-scale production facilities,
    - a commercial kitchen,
    - analytical and sensory laboratories,
    - training facilities,
    - space to network and collaborate, and
    - retail and hospitality facilities.
- Encourage co-location of existing businesses to the broader West Tamar site.

ECONOMIC DEVELOPMENT, PROMOTION AND CO-BRANDING

Developing a joint communication and promotion protocol, with defined responsibilities for each party when the Fermentation Hub is designed and built, that includes:

- Developing key messages to enhance positive perceptions relating to the West Tamar region and the fermentation sector,
- Developing a coordinated program for promotion of fermentation businesses located in the West Tamar region including consideration of:
    - promotional activity in Northern Tasmania and Tasmania,
    - support for fermentation and fermentation-related businesses including agritourism providers showcasing their products and offerings, and
    - hospitality industry and/or consumer campaign focused on Tamar Valley fermented produce,
- Promoting opportunities available to individual fermentation businesses,
- Improved support for and promotion of inbound visitation across Northern Tasmania and Tasmania, including visitation of cellar doors and fermentation businesses,
- Evaluating additional means of strengthening farmgate sales in Northern Tasmania and Tasmania,
- Promoting local producers at West Tamar functions and venues, and
- Co-branding and delivery of agreed initiatives.

MEMORANDUM OF UNDERSTANDING

BETWEEN

UNIVERSITY OF TASMANIA ABN 30 764 374 782 of 2 Churchill Avenue, Sandy Bay in Tasmania, Australia ("**UTAS**");

AND

Fermentation Tasmania Limited ACN 609 538 338 of 2 Bridge Road, Launceston in Tasmania, Australia ("**FermenTasmania**");

(each a "**Party**" and together the "**Parties**")

INTRODUCTION

A. The functions of UTAS include that it will advance, transmit and preserve knowledge and learning, promote higher education having regard to principles of merit and equity, and engage in activities which promote the social, cultural and economic welfare of Tasmania.

B. FermenTasmania is committed to accelerating innovation, growth and collaboration for fermentation-based enterprises. The FermenTasmania aspiration is for Tasmania to be an internationally recognised centre for excellence for the design, production and marketing of fine fermented food, beverages and other products.

C. UTAS and FermenTasmania each have a commitment to furthering the excellence, competitiveness and productivity of fermentation-based industries in Tasmania through research, education and training.

D. To advance their shared commitment to furthering the excellence, competitiveness and productivity of fermentation-based industries in Tasmania, UTAS and FermenTasmania intend to collaborate with a view to conducting joint activities as set out in this Memorandum of Understanding ("**MoU**").

1. MUTUAL COOPERATION FOR JOINT ACTIVITIES

1.1. The Parties are committed to holding discussions to further joint activities related to the excellence, competitiveness and productivity of fermentation-based industries in Tasmania.

1.2. To this end, the Parties seek to collaborate in the areas of research, education and training.

1.3. In particular, the Parties seek to identify, discuss and define opportunities:

(a) to share access to facilities, technology and equipment;

(b) for government, industry and university research collaboration in relation to fermentation;

(c) to access and share information about possible research projects;

(d) to deliver education and training.

2. REPRESENTATIVES

2.1. Each Party will appoint a representative ("**Representative**") who is responsible for:

(a) leading the co-operation between the Parties as set out in clause 1;

(b) identifying any issues that arise between the Parties, and referring those issues to the appropriate person within their organisation for resolution;

(c) discussing issues arising out of this MOU with the other Party; and

(d) co-ordinating the exchange of information between the Parties.

2.2. The Representative of each Party at the date of this MOU is:

For **UTAS**: Name: Professor Anthony Koutoulis Position: Deputy Vice Chancellor Research Contact Address: Private Bag 55, Hobart 7001 Contact Telephone Number: 03 6226 2737 Email: Anthony.Koutoulis@utas.edu.au	For **FermenTasmania:** Name: Karina Dambergs Position: CEO Contact Address: 2 Bridge Rd, Launceston 7250 Contact Telephone Number: 0417 660 452 Email: ceo@fermentasmania.com

2.3. The Representative of a Party may be substituted by that Party, in which case the Party should notify the other Party of the new Representative.

2.4. A Party must not assume, by virtue of a person's appointment as a Representative, that the Representative is authorised to bind the Party, or to execute any agreement on its behalf.

3. OUTCOMES OF DISCUSSIONS

3.1 From time to time, the outcome of the cooperation described in clause 1 will be that the Parties agree to negotiate and execute agreements about research opportunities.

3.2 Without limiting the foregoing, the Parties may from time to time enter into agreements regarding the development of research projects and grant applications, which agreements can be expected to include provisions dealing with:

(a) Ownership of intellectual property, including, but not limited to, background intellectual property, third party intellectual property and project intellectual property;

(b) Permissions granted on intellectual property relevant to opportunities contemplated under this MOU;

(c) Publication requirements and any permissions required;

(d) The management and protection of confidential information, where relevant.

3.3 The Parties acknowledge that an agreement of the kind described by clause 3.2 must be in writing and signed by a duly authorised representative for it to be legally binding.

4. CONFIDENTIALITY

4.1 "**Confidential Information**" in this MOU means any information which is expressed by either Party to be confidential or which the Parties know or ought to know is intended to be confidential, but does not include information that is public knowledge or developed independently by a Party wishing to disclose the information.

4.2 A Party ("**Recipient**") will not disclose any Confidential Information belonging to the other Party ("**Discloser**") unless:

(a) the disclosure is required by law;

(b) the Confidential Information was known to the Recipient prior to its disclosure or it was is made available to the Recipient by a third party which does not owe obligations of confidentiality to the Discloser; or

(c) the Discloser has first given its written consent to the disclosure of the Confidential Information.

4.3 Each Party will take reasonable steps to ensure that it, and its employees, agents and sub-contractors comply with the terms of clause 4.2 of this MOU.

4.4 Despite any term to the contrary, the Parties agree that the existence and terms of this MOU are not Confidential Information.

5. DEALINGS

5.1 Nothing in this MOU is intended to:

(a) prevent a Party from engaging in activities or research independently of the other Party in the areas covered by this MOU, including in collaboration with third parties;

(b) create a relationship between the Parties of partnership or joint venture;

(c) require either Party to assign or create any rights to its intellectual property for the benefit of the other Party; or

(d) require a party to disclose Confidential Information.

6. MEDIA AND PUBLICITY

6.1 The Parties commit to consult prior to any publication, promotional and advertising material, public announcement or other similar activity relating to matters dealt with in or

arising under this MOU. Following that consultation, the Parties will acknowledge each other in accordance with each Party's requirements.

7. TERM AND VARIATION

7.1 The term of this MOU is a period of three (3) years from the date of execution by the last of the Parties, unless terminated earlier by the mutual consent of the Parties.

7.2 Either Party may terminate this MOU at any time and for any reason by providing not less than 6 months' notice in writing to the other Party.

7.3 This MOU may only be varied or amended by written agreement between the Parties.

7.4 The Parties may extend this MOU by further written agreement.

8. MISCELLANEOUS

8.1 The Parties do not wish to be legally bound by the provisions of this MOU, with the exception of clause 4 which survives the termination or expiry of this MOU.

8.2 With the exception of the obligations in clause 4, this MOU serves only as a record of the Parties intentions pending possible execution of further agreements as contemplated by clause 3.

8.3 This MOU is governed by the law of the State of Tasmania, Australia, and the Parties submit to the non-exclusive jurisdiction of the courts of that State.

EXECUTION BY PARTIES

SIGNED for and on behalf of the **UNIVERSITY OF TASMANIA** in the presence of:)

Signature of Witness

NICOLA HODGMAN

Name of Witness
(block letters)

DATE: 25/6/2020

Signature of authorised person

Deputy Vice-Chancellor (Research)

Office held

ANTHONY KOUTOULIS

Name of authorised person
(block letters)

SIGNED for and on behalf of **FermenTasmania** in the presence of:)

Signature of Witness

Name of Witness
(block letters)

DATE: 24/6/20

Signature of authorised person

CEO

Office held

KARINA DAMBERGS.

Name of authorised person
(block letters)

Appendix **C**

Appendix C. Key project stakeholders

Stakeholder category	Stakeholder	Interest/s
Internal stakeholders		
FermenTasmania	Board Management	• Proponent for construction and asset ownership • Proponent for operations
Australian Government		
Departmental ministers	Minister for Infrastructure, Transport and Regional Development Minister for Industry, Science and Technology Minister for Employment, Skills, Small and Family Business	• Alignment with federal objectives and plans • Infrastructure that is properly planned and timed • Investment decision/approval • Environmental approvals/ requirements
Elected representatives	Federal Member for Bass Federal senators	• Alignment with federal objectives and plans • Infrastructure that is properly planned and timed • Local economic, social and environmental impacts
Australian Government departments and authorities	Department of Infrastructure, Transport, Regional Development and Communications Department of Industry, Science, Energy and Resources Food Innovation Australia Limited	• Administration of the funding programs • Environmental approvals/requirements • Alignment with federal objectives and plans
Tasmanian Government		
Premier and departmental ministers	Premier and Treasurer Deputy Premier and Minister for Education and Training Minister for State Growth and Minster of Small Business Minister for Primary Industries and Water	• Investment decision/approval • Alignment with other Tasmanian Government department objectives and plans • Infrastructure investment that is properly planned and timed
Elected representatives	State Members for Bass	• Alignment with state objectives and plans • Infrastructure that is properly planned and timed • Local economic, social and environmental impacts
Tasmanian Government departments, authorities and corporations	Department of Treasury and Finance Department of State Growth Department of Primary Industries, Parks, Water and Environment Office of the Coordinator-General	• Alignment with Tasmanian Government department objectives and plans • Infrastructure investment that is properly planned and timed • Environmental approvals/ requirements • Ongoing management and delivery activities
Local government		
Councils	West Tamar Council Northern Tasmanian Development Corporation	• Job creation in the region • Impact on environment • Advancing the area's status as an attractive place to invest • Increasing local economic activity and tourism • Planning approvals/ requirements

Stakeholder category	Stakeholder	Interest/s
Community and business		
Potential customers	Parties that could be a customer or foundation partner	• Details of opportunities from the project • Annual costs and other terms and conditions • Timing and other impacts of the project
Potential contractors	Parties that could tender for the project if it is approved and funded	• Information on the tender process and contract strategy • Promoting innovation, capacity and capability for the construction of the project • Timing and other impacts of the project, such as approvals
Business	Launceston Chamber of Commerce	• Improved conditions and opportunities for local businesses • Advancing the region's status as a leader in in food and beverage • Advancing growth and job creation in the region
	Tasmanian Chamber of Commerce and Industry	
Industry peak bodies	Wine Tasmania	• Improved opportunities for industry development, awareness and training opportunities • Advancing the region's status as a leader in in food and beverage
	Tasmanian Farmers and Graziers Association	
	Tasmanian Hospitality Association	
	Tasmanian Whiskey and Spirits Association	
Community groups (interest groups and community service organisations)	Harvest Market Launceston	• The opportunities the project will bring • How long it will take to plan and build • Value for money for taxpayers
Media	Newspapers	• What is done and by whom • Project cost • Why this is needed • The opportunities the project will bring • How long it will take to plan and build • Value for money for taxpayers
	Radio	
	Television	
	Online content	

Appendix **D**

fermentasmania

The Tasmanian Fermented Food and Drink Workforce Development Project

FINAL REPORT
prepared for
Skills Tasmania,
Department of State Growth

by
FermenTasmania

September 2018

1 Contents

[Cover page photo credits (L-R): Bruny Island Cheese, KimChiMe, Pigeon Whole, Brady's Lookout Cider, St John Craft Beer]

Executive Summary

This report provides a snapshot of current (late 2017) and anticipated (3-5 years hence) workforce levels in the Tasmanian food and drink fermentation sector.

Participating enterprises were involved in producing value added food and drink comprising beer, cider, mead, vinegar, dairy (e.g. cheese, yoghurt, kefir), kombucha, vegetables (e.g. kimchi, sauerkraut) and bakery (e.g. traditional, sourdough). Enterprises focussing on the production of wine and/or distilled spirits were not included in this report as they are the subject of separate workforce development projects. [It should also be noted that we were not successful in attempts to engage with the largest cheese producer in NW Tasmania or the largest beer and cider producer in southern Tasmania. It is estimated that these enterprises employ around 400 and 90 people respectively.]

For those sectors *from which first hand data was collected and extrapolated*, data indicate that, at the end of 2017:

- There were about 1,100 people employed in the fermentation sector in Tasmania.
- Total employee numbers per enterprise ranged from 1 to 57.
- The median number of employees per enterprise varied between sectors, from three in the cider sector to 12 in the dairy sector.

Extrapolated data suggest the following growth patterns for the fermentation sector over the next 3-5 years:

- **Beer**: there will be a requirement for about **40 new roles** (an overall increase of ~10%), with around 30 of these being in the Specialist and Operations categories, the remainder being Managers/Leaders.
- **Cider**: there will be a requirement for about **45 new roles** (an overall increase of ~20%), about 30 of which will be in the Leader/Manager category, and the remainder evenly spread across Specialist and Operations.
- **Dairy**: there will be a requirement for about **95 new role**s (an overall increase of ~15%), about 50 of which will be in the Specialist category, and the remainder spread relatively evenly across the Leader/Manager and Operations categories.
- **Other**[1]: there will be a requirement for about **170 new roles** (an overall increase of ~70%), about 100 of which will be in the Operations category, ~40 Leader/Managers and ~30 Specialists.

These data suggest that organisational focus of these new roles would be:

- ~100 Management/Leadership roles
- ~100 Specialist roles
- ~150 Operations roles.

There was a clear need for workforce development activities across the entire value chain of fermenting-focussed enterprises.

[1] The 'Other' category comprises producers of, amongst other things, fermented condiments; fermented beverages; miso; bread; plant-based cheese; kraut; kimchi; mead; and water kefir.

However, interviewees – who were largely enterprise owners and/or managers – demonstrated a strong preference for workforce development to be focussed on the Operations and Specialist categories.

In saying this, industry members felt that more could be done to map training courses and segments more closely to current industry needs. It was also felt that courses should do more to focus on provision of useful knowledge that underpins current skill requirements. This highlights a perception by industry members that they are somewhat disconnected from curriculum design and priority setting.

There was no clear trend in response to questions regarding the perceived value of training that leads to accredited qualifications. Some industry members discounted the value of these, while others were keen for all training to be mapped against formal qualifications.

Opinion regarding preferred delivery mechanisms covered the range from wholly in-house (by staff and/or external training providers) to wholly external.

There was a clear preference to 'hire for attitude, and train in-house'. Exploration of this preference highlighted a common belief that each production system was unique, and that externally-provided training was unlikely to provide sufficient return on investment with regard to relevant, practical skills.

It will be a challenge to develop courses that appeal to most enterprises and their staff. The first step will be building trust in the course material, so that the intrinsic value of each course is apparent. Once that trust is built, it is likely that enterprises will show an increased flexibility in accepting different delivery options.

At the time of writing, FermenTasmania has just been awarded initial operational funding support from Food Innovation Australia Ltd. As such, FermenTasmania will be able to:

- take ownership of project recommendations,
- apply resources to their implementation, and
- monitor and evaluate future trends.

Recommendation 1: FermenTasmania to establish a forum comprising industry members and training providers to discuss industry workforce development priorities and delivery options

This project provides a first step in building a cohesive, cross-industry workforce development program. The next step is to build a solid working relationship between industry and training providers so that the drivers and needs of each can be understood and a flexible, sustainable workforce development framework be developed.

In this way, the industry will build an understanding of specific skills needed within various enterprises and then work directly with training providers to design and deliver courses that meet these needs. If it is found that the current pool of training providers is not able to deliver against identified needs, then alternative delivery models will need to be explored.

It should be noted that this recommendation aligns with Recommendations 1 and 3 from the Tasmanian Distilling Industry Workforce Report (Skills Tasmania, 2017). FermenTasmania currently is leading discussions regarding providing executive and coordinating roles for a number of Tasmanian industry bodies and anticipates being able to facilitate progress against these recommendations.

Recommendation 2: Fermentasmania to work with industry bodies and training providers to map recognised industry training packages against accredited courses or units

There is currently a range of opinions as to the current value of accredited qualifications within the fermentation workforce. It is also acknowledged that formal qualifications are valued by a sector of the workforce and that enterprises have a duty to provide their staff with opportunities to achieve such.

In this light, mapping recognised and valued courses (for example, those offered by the Institute of Brewing and Distilling: https://www.ibd.org.uk/qualifications/training/) against formal Operations, Specialist or Management level qualifications was seen by industry members as an attractive option and should be pursued.

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2 Project Title

The Tasmanian Fermented Food and Drink Workforce Development Project

3 Background

Tasmania is home to an increasing number of world-class fermented food and drink production companies. Current established and nascent enterprises are focused on the production of, amongst other products, beer, cider, mead, vinegar, wine, dairy (e.g. cheese, yoghurt, kefir), kombucha, vegetables (e.g. kimchi, sauerkraut) and bakery (e.g. traditional, sourdough).

Tasmanian fermentation industry members have clearly indicated they consider their individual enterprises are constrained by a lack of access to suitably trained staff.

This project sought to address the need for the Tasmanian fermentation industry to implement a formal structure through which they can plan and prepare for their anticipated need for an increasing number of skilled workforce members.

FermenTasmania (www.fermentasmania.com) is an industry-led, member-based, not for profit (limited by guarantee) company established with the vision of Tasmania being internationally recognised as a go-to region of excellence for the design, production and marketing of fine fermented food and drinks.

4 Project Objective (Approved Purpose for which the grant was provided)

The project was conducted to support identification of current and future workforce development needs within and across Tasmania's fermentation sectors[2], to investigate the need and viability of developing a workforce development plan.

Additional detail on the approved purpose was included in the Fermentation Tasmania Ltd project proposal provided to Skills Tasmania, Department of State Growth, on 12 April 2017. These were:

- Develop a clear understanding of the job roles, capability requirements and skill needs within the Tasmanian fermentation industry
- Understand gaps and any regional differences
- Enable enterprise managers to make informed decisions relating to workforce and business development
- Use the findings to provide recommendations regarding training curriculum and delivery options.

5 Project Outputs

- Draft and final project reports, which will map current and anticipated workforce needs, present industry priorities for workforce development activities, provide recommendations

[2] For the purpose of this project, we define different fermentation sectors in terms of specific products, for example, beer, bread, cider, cheese, kombucha, sauerkraut, mead, wine, dairy)

for industry relevant training course focus and delivery, and provide an evaluation model for use in following years.

6 Anticipated Outcomes

- Attitudinal:
    - Increased understanding of the job roles, capability requirements and skill needs of the industry, endorsed by the industry.
- Capacity:
    - Increased understanding and capacity of business owners and managers within the industry of the benefits of workforce development and planning.
- Structural:
    - Improved accessibility of information and resources relating to workforce development tools, techniques, processes and training needs.
    - Improved industry engagement in collaborative workforce development activities, including increased cross-sector cooperation and closer coordination with training providers, including UTAS, TasTAFE and private RTOs.

7 Methods

7.1 First industry consultation

Potential interviewees, drawn from the FermenTasmania stakeholder database were invited to participate by email and follow-up phone calls. All those responding positively to the invitation were interviewed. The initial round of face-to face and telephone interviews were conducted by Tom Lewis in October and November 2017.

It should also be noted that we were not successful in attempts to engage with the largest cheese producer in NW Tasmania or the largest beer and cider producer in southern Tasmania. It has been estimated that these enterprises employ around 400 and 90 people respectively.

Interviews were semi-structured, to allow participants opportunity to discuss items that they considered of importance to the project and their sector.

Initial interview questions covered the following topics:

- Current workforce, FTE and roles
    - Is this adequate for current needs?
    - Where are the current gaps?
- Anticipated workforce, FTE and roles in 3-5 years' time
- Threats and opportunities that may affect plans
- Current interaction with the formal workforce development sector
- Anticipated interaction with the formal workforce development sector
- Any other matters.

In addition to collection and analysis of workforce demographic data, interviews canvassed business owners' thoughts and opinions regarding the types of capability-building services that they would value and the delivery styles that would best suit them and their employees' needs.

7.2 Second industry consultation

Collated data, together with preliminary analysis was presented, in draft form, to the initial core group of interviewees in April and early May 2018.

After allowing time for recipients to read and consider the draft report, a second series of consultations (email, phone, face-to-face – to suit the needs of industry members), to test and gather feedback on the contents of the draft paper, was conducted during May 2018.

Information and opinion provided during this consultation round informed the development of this final report

7.3 Training provider consultation

Training providers (private Registered Training Organisations; private non-Registered Training Organisations; UTAS; TasTAFE) were consulted in July 2018 to discuss preliminary findings and to inform initial recommendations for providing more targeted and coordinated engagement with Tasmanian enterprises.

7.4 Project and data constraints

- While this report provides current and anticipated workforce data, obtained through stakeholder interviews, the project itself primarily had a social research focus: to understand and build engagement between industry members and existing workforce development practices and ecosystems. Behavioural change in this regard, supported by enactment of the project recommendations, will become apparent over time, and as such is outside the time-bound scope of this particular project.
- It was neither planned nor feasible to interview all fermenting organisations in Tasmania for this project. We have, therefore, extrapolated the data obtained on a pro-rata basis against the FermenTasmania database of Tasmania fermenters, which is, to our knowledge, the most complete database of this nature available. Data was extrapolated at an enterprise level. For example, in the case of cider enterprises, Table 1 shows that we interviewed five of the seventeen (=29%) cider enterprises on our database and therefore multiplied reported cider industry data by 3.4 to obtain our extrapolated figures for that sector.
- We were unable to engage with two of the largest employers in the fermentation sector in Tasmania – one in the dairy sector and one in the beer sector.
- This report is informed by data obtained from existing enterprises. Given the rapid growth of this sector, it is very likely that new fermenting enterprises will be established during the next 3-5 years, adding to the numbers of new roles that will be required to be filled.
- It is also possible that some rationalisation may occur in all sectors, possibly leading to the loss of some roles and jobs.

8 Current and anticipated industry workforce

Data in this section provides a snapshot of current (2017-18) and anticipated (3-5-year horizon) workforce numbers for the Tasmanian fermentation sector, presented against three categories:

- Number of employees
- Full Time Equivalent employment
- Number of roles.

The first two categories are self-explanatory. The third – number of roles – provides a measure of the diversity of tasks performed across the existing workforce.

8.1 Interviews

Table 1. Number of Tasmanian fermentation producers interviewed, by sector and region

REGION[1] / **SECTOR**	***North-west***	***North***	***South***	***TOTAL***	***TAS Fermenters***[4] ***on our database***	***% of known sector interviewed***
Beer	1	2	3	**6**	**29**	**21%**
Cider	1	2	2	**5**	**17**	**29%**
Dairy[2]	-	2	1	**3**	**19**	**16%**
Other[3]	1	3	6	**10**	**32**	**31%**
SUB-TOTAL	**3**	**9**	**12**	**24**	**97**[5]	**25%**
Wine	-	-	-	-	36	-
TOTAL	-	-	-	-	**133**	-

1. Regions are those used for economic development activities in Tasmania
2. Sector 'Dairy' consulted in interviews included: cheese; yogurt.
3. Sector 'Other' consulted in interviews included: fermented condiments; fermented beverage; miso; bread; plant-based cheese; kraut; kimchi; mead; water kefir
4. TAS Fermenters – Business that ferment product. Does not include business that just bottle, market, etc
5. Wine sector information provided for completeness. Data analysed in this report does not include the 'Wine' Sector, as this sector has developed its own workforce development plan.

From Table 1, we can see that the proportion of enterprises on the FermenTasmania database that participated in the consultation process was consistently high across sectors, ranging between 16% (Dairy) - 31% (Other). Importantly, the interview process reached a high level of data saturation (i.e. no new perspectives or explanations were being raised by interviewees) with regards to perceived opportunities and threats being faced by these sectors during the next 3-5 years.

8.2 Enterprise size

8.2.1 Current employee numbers, full time equivalent (FTE) employment and individual roles

For those sectors for which first hand data was collected, the extrapolated data in Table 2 indicate that:

- There were about 1,100 people employed in the fermentation sector in Tasmania
- Total employee numbers ranged from 1 to 57 in those companies interviewed, with third-party estimates suggesting that the largest enterprise had about 400 employees.

- The median number of employees in enterprises varied between sectors, from three in the cider sector to 12 in the dairy sector.

Table 2. Current employees in the Tasmanian fermentation industry

SECTOR	Interview data				Extrapolated[1]
	Current employees	Median employees per business	Minimum employees per business	Maximum employees per business	Total current employees in Tasmania
Beer*	89	6.0	2	57	424
Cider	62	3.0	3	45	214
Dairy*	38	12.0	12	14	224
Other	65	3.5	1	34	210
Overall	**254**[2] total	**6.1** average	**1** lowest	**57** highest	**1,072** total

1. Total current employees extrapolated based on percentage of known sector interviewed
2. Does not include additional 20 casual staff intermittently employed for festivals or events

***Note** We were not successful in attempts to engage with the largest cheese producer in NW Tas or the largest beer and cider producer in southern Tasmania. It is estimated that these enterprises employ around 400 and 90 people respectively.

For those sectors for which first-hand data was collected, the data in Table 3 indicate that:

- There were about 870 FTE positions in the fermentation sector in Tasmania
- Total FTE numbers ranged from 1 to 57 in those companies interviewed, with extrapolated third-party estimates suggesting that the largest enterprise had about 320 FTEs.
- The median number of FTE positions in enterprises varied between sectors, from 2.5 in the cider sector to 12 in the dairy sector.

Table 3. Current full time equivalent (FTE) employment in Tasmanian fermentation industry

SECTOR	Interview data				Extrapolated[1]
	Current FTE employment	Median FTEs per business	Minimum FTEs per business	Maximum FTEs per business	Total FTE employees in Tasmania
Beer*	81	3.8	1	57	386
Cider	36	2.5	2	25	122
Dairy*	35	12	10	13	206
Other	47	2.4	1	25	152
Overall	**199** total	**5.1** average	**1** lowest	**57** highest	**866** total

1. Total FTE extrapolation was based on the percentage of known sector interviewed

***Note** These data do not include the largest cheese producer in NW Tas or the largest beer and cider producer in southern Tasmania.

Table 4 provides a summary of data presented above, in addition the ratios between FTE and total employee numbers, and between total roles and total employee numbers. Bearing in mind the

caveat regarding absence of data for two large enterprises, these ratios suggest that the smaller fermentation sector enterprises provide largely close-to-full-time positions (average FTE:employee ratio of 0.8).

The significance, if any, of the average number of roles per employee data is unclear, but it may be that a decreasing ratio is an indication of increasing organisational maturity of a given enterprise.

Table 4. Extrapolated summary of current employees, full time equivalent (FTE) employment and roles in the Tasmanian fermentation industry

SECTOR	Extrapolated to current Tasmanian industry			Current ratios	
	FTEs	Employees	Roles	FTE:employees	roles:employees
Beer*	**386**	**424**	**490**	**0.9**	**1.2**
Cider	**122**	**214**	**217**	**0.6**	**1.0**
Dairy*	**206**	**224**	**241**	**0.9**	**1.1**
Other	**152**	**210**	**245**	**0.7**	**1.2**
Overall	**866** total	**1,072** total	**1,193** total	**0.8** average	**1.1** average

***Note** These data do not include the largest cheese producer in NW Tas or the largest beer and cider producer in southern Tasmania.

Table 5 provides a breakdown of data regarding current and anticipated (3-5-year horizon) roles in the fermentation sector in Tasmania.

We have, informed by the interview raw data, separated these roles into three categories:

- *Leadership/Managerial roles* (e.g. business strategy, business development, compliance, finance, workforce relations, workplace health and safety, marketing)
- *Specialist roles* (e.g. product development, design, production, quality systems, quality control, quality assurance, food safety)
- *Operations roles* (e.g. general labour, cleaning, stock control, retail, food service, packing, maintenance, sales, distribution, administration).

Table 5. Summary of current and projected roles in the Tasmanian fermentation industry

	Current roles							
SECTOR	**Interview data**				**Extrapolated to Tasmanian industry**			
	Leader/Manager	**Specialist**	**Operations**	**Total**	**Leader/Manager**	**Specialist**	**Operations**	**Total**
Beer*	15	27	61	**103**	71	129	290	**490**
Cider	7	16	40	**63**	24	55	138	**217**
Dairy*	10	10	21	**41**	59	59	124	**242**
Other	22	12	42	**76**	71	39	135	**245**
TOTAL	**54**	**65**	**164**	**283**	**225**	**282**	**687**	**1,194**

	New roles in next 3 to 5 years							
SECTOR	**Interview data**				**Extrapolated to Tasmanian industry**			
	Leader/Manager	**Specialist**	**Operations**	**Total**	**Leader/Manager**	**Specialist**	**Operations**	**Total**
Beer*	1	3	4	**8**	5	14	19	**38**
Cider	8	2	3	**13**	28	7	10	**45**
Dairy*	5	8	3	**16**	29	47	18	**94**
Other	13	8	33	**54**	42	26	106	**174**
TOTAL	**27**	**21**	**43**	**91**	**104**	**94**	**153**	**351**

	Total projected roles in next 3 to 5 years							
	Interview data				**Extrapolated to Tasmanian industry**			
	Leader/Manager	**Specialist**	**Operations**	**Total**	**Leader/Manager**	**Specialist**	**Operations**	**Total**
Beer*	16	30	65	**111**	76	143	309	**528**
Cider	15	18	43	**76**	52	62	148	**262**
Dairy*	15	18	24	**57**	88	106	142	**336**
Other	35	20	75	**130**	113	65	241	**419**
TOTAL	**81**	**86**	**207**	**374**	**329**	**376**	**840**	**1,545**

***Note** These data do not include the largest cheese producer in NW Tas or the largest beer and cider producer in southern Tasmania.

9 Analysis

9.1 Anticipated industry growth

Recognising the constraints described in the Methods section (page 6), analysis of the data presented above, informed by broader discussions during the two rounds of industry-member interviews, can be summarised as follows.

- The fermentation industry in Tasmania is in a stage of strong growth. Of the 24 Tasmanian fermentation producers interviewed, 18 (75%) indicated that they had plans for growth in the next three to five years and that they would require new roles within their business.

- Extrapolated data suggest the following growth patterns for the fermentation sector over the next 3-5 years:
    - **Beer**: there will be a requirement for about **40 new roles** (an overall increase of ~10%), with around 30 of these being in the Specialist and Operations categories, the remainder being Managers/Leaders.
    - **Cider**: there will be a requirement for about **45 new roles** (an overall increase of ~20%), about 30 of which will be in the Leader/Manager category, and the remainder evenly spread across Specialist and Operations.
    - **Dairy**: there will be a requirement for about **95 new role**s (an overall increase of ~15%), about 50 of which will be in the Specialist category, and the remainder spread relatively evenly across the Leader/Manager and Operations categories.
    - **Other**[3]: there will be a requirement for about **170 new roles** (an overall increase of ~70%), about 100 of which will be in the Operations category, ~40 Leader/Managers and ~30 Specialists.

- These data suggest that the following would need be filled over the next 3-5 years:
    - **~100 Management/Leadership roles**
        - Industry members felt that training opportunities for this category were readily available.
        - The concept of such courses being offered specifically to those in the agri-food sector was considered attractive in terms of added peer-review and networking possibilities.

    - **~100 Specialist roles**
        - Industry members felt that training to bring 'work-ready' specialists into the workforce, and for those already in the industry to gain specialist skills, was lacking.
        - It was felt that capability-building for these roles could be supported through a combination of focussed, non-accredited courses and an increased selection of tertiary-level (TAFE and University) options.

[3] The 'Other' category comprises producers of, amongst other things, fermented condiments; fermented beverages; miso; bread; plant-based cheese; kraut; kimchi; mead; and water kefir.

        - Interviewees encouraged training providers to explore options to integrate industry-recognised training (e.g. from the Institute of Brewing and Distilling) into current or new accredited units.

    - **~150 Operations roles.**
        - Interviewees considered that for training for this cohort to be more effective, there was a need for greater engagement between industry members and training providers.
        - A key and consistent point was that industry members considered that production-level training should include the 'why' as well as the 'what' and 'how' of the skills development in question. It was considered that a change of emphasis along these lines would
            - increase operations worker job satisfaction by increasing their understanding of the absolute value of many of their day-to-day tasks and
            - increase employment options and flexibility amongst operations workers.

It should be noted that:

- this anticipated growth within the Tasmanian fermentation sector could be stronger than indicated, as only extant enterprises were included in the consultations. Given the rapid increase in the number of fermentation-focussed enterprises during the past few years, it is considered likely that this trend will continue. It is possible also that some rationalisation may occur within some sectors, tempering the observed expansion rate. At present, it is impossible to assess the likelihood, scale or impact of possible new market entrants and/or rationalisation.
- this data relates only to Tasmania. It is likely that other Australian states will be experiencing similar trends, suggesting that demand across Australia for additional, appropriately skilled fermentation-focussed staff is likely to be high in the coming years.

9.2 Training curriculum priorities and options

Table 6 provides a picture of the typical spread of roles along a fermentation-focussed value chain, mapped against Operations, Specialist and Management/Leadership categories.

It was clear through the initial interviews and subsequent industry feedback that there is a need for workforce development activities across the entire value chain of fermenting-focussed enterprises.

However, interviewees – who were largely enterprise owners and/or managers – had a strong preference for workforce development to be focussed on the Operations and Specialist categories.

In saying this, industry members felt that more could be done to map training courses and segments more closely to current industry needs. It was also felt that courses should do more to focus on provision of useful knowledge that underpins current skill requirements. This highlights a perception

by industry members that they are somewhat disconnected from curriculum design and priority setting.

The delivery of courses that support workplace-relevant knowledge and skills was viewed as important by all interviewees. Demand for delivery of accredited qualifications, however, was mixed. There was no clear trend in response to questions regarding the perceived value of training that leads to accredited qualifications, be they Certificates, Diplomas, Associate degrees or Degrees. Some industry members discounted the value of these, while others were keen for all training to be mapped against formal qualifications. It is worth noting that some interviewees saw more value in providing in-house training than engaging with external providers.

9.3 Delivery options

Perhaps unsurprisingly, opinion regarding preferred delivery mechanisms covered the range from wholly in-house (by staff and/or external training providers) to wholly external.

There was a clear preference across interviewees, from smaller and larger enterprises, to 'hire for attitude, and train in-house'. Exploration of this preference highlighted a common belief that each production system was unique, and that externally-provided training was unlikely to provide relevant, practical skills.

It will be a challenge to develop courses that appeal to most enterprises and their staff. The first step will be building trust in the course material, so that the intrinsic value of each course is apparent. Once that trust is built, it is likely that enterprises will show an increased flexibility in accepting alternative delivery options.

Anecdotal evidence suggests that the larger fermenting enterprises in Tasmania, all of whom are owned by multi-national entities, are unlikely to engage in any substantial way with state-based workforce development activities. These companies have access to their own focussed, in-house workforce development programs.

9.4 Project outcomes

While anticipated project outcomes are expected to be more obvious across a 1-3-year time-scale, it is worth noting that some change was already apparent during the delivery of the project itself.

- Attitudinal changes
    - Discussions during the second industry consultation showed an increased focus on the need for increased formality of enterprise-level workforce development activities.
- Capacity and structural changes
    - There was increased discussion about how organisations like FermenTasmania could work with enterprises on individual and collective bases to develop and deliver workforce development resources and activities.

Table 6: Matrix of roles along a generic fermentation value chain against Operations, Specialist and Management/Leadership categories

Category	Roles					
	Business	**Maintenance**	**Operations**	**Packaging**	**Sales and Marketing**	**Distribution**
Operations	• Administration assistant	• Maintenance technician – repair and preventative maintenance	• Production operator (daily operations and cleaning) • Stock control assistant • WHSE representative	• Packaging operator • Stock control assistant	• Marketing assistant • Sales representative • Brand ambassador • Food and Beverage attendant	• Delivery driver • Stock control assistant • Warehouse operator
Specialist	• Office manager • Accounts officer • Payroll officer • Purchasing officer • HR officer	• Mechanical fitter/engineer • Maintenance planner/supervisor • Maintenance inventory controller	• Inventory/Stock controller (ingredients, finished goods) • Purchasing officer • Team leader • Storage manager • QA/QC manager • Food scientist • Lab technician • Production planner • Grower liaison officer	• Inventory controller • Packaging supervisor • Production planner • Packaging engineer	• Marketing team leader • Social media manager • Sales team leader • Orders and inventory administrator • Food and beverage supervisor	• Stock control and delivery manager • Logistics administrator
Management/Leadership	• Director • HR manager • Compliance manager • Financial controller • CEO • Procurement manager	• Engineering manager	• New Product Development manager • Production manager • Operations manager • Technical manager • Food scientist • Laboratory manager • Operations director • WHSE manager • Quality manager/s (HACCP, ISO, Food safety) • Continuous improvement manager	• Packaging manager	• Marketing director • Marketing manager • Brand manager • Sales manager • Sales director • Key accounts manager • Venue manager • Festivals manager • Sponsorship manager • Public relations manager	• Customer liaison manager • Logistic manager • Supply manager • Supply chain director

10 Recommendations

At the time of writing (September 2018), FermenTasmania has just been awarded initial operational funding support from Food Innovation Australia Ltd. As such, FermenTasmania will be well paced to:

- take ownership of project recommendations,
- apply resources to their implementation, and
- monitor and evaluate future trends.

FermenTasmania's industry-cluster framework (e.g. see http://www.tci-network.org/about_clusters) will facilitate closer collaboration among individual enterprises, industry groups and training providers to design and implement practical, pragmatic interventions to meet anticipated workforce capacity and capability needs.

Data from this project will be an invaluable source of base-line information to inform FermenTasmania's work to support Tasmania's fermentation-focussed enterprises.

Recommendation 1: FermenTasmania to establish a forum comprising industry members and training providers to discuss industry workforce development priorities and delivery options

This project has provided a first step in building a cohesive, cross-industry workforce development program.

The next step is to build a solid working relationship between industry and training providers so that the drivers and needs of each can be understood and a flexible, sustainable workforce development framework be developed.

In this way, the industry will build an understanding of specific skills needed within various enterprises and then work directly with training providers to design and deliver courses that meet these needs. If it is found that the current pool of training providers is not able to deliver against identified needs, then alternative delivery models will need to be explored.

It should be noted that this recommendation aligns with Recommendations 1 and 3 from the Tasmanian Distilling Industry Workforce Report (Skills Tasmania, 2017). FermenTasmania currently is leading discussions regarding providing executive and coordinating roles for several Tasmanian industry bodies and anticipates being able to facilitate progress against these recommendations.

Recommendation 2: Fermentasmania to work with industry bodies and training providers to map recognised industry training packages against accredited courses or units

There is currently a range of opinions as to the current value of accredited qualifications within the fermentation workforce. It is also acknowledged that formal qualifications are valued by a sector of

the workforce and that enterprises have a duty to provide their staff with opportunities to achieve such.

In this light, mapping recognised and valued courses (for example, those offered by the Institute of Brewing and Distilling: https://www.ibd.org.uk/qualifications/training/) against formal Operations, Specialist or Management level qualifications was seen by industry members as an attractive option and should be pursued.

11 Evaluation process

The overall success of this and subsequent workforce development projects for the fermentation sector in Tasmania will be measured in terms of:

- workforce-related engagement and cooperation between enterprises within sectors and/or regions,
- workforce training options and training opportunities of relevance to fermentation-based enterprises,
- employment levels within the Tasmanian fermentation industry, and
- numbers of regionally-based workers with the capability to work across fermentation sectors.

FermenTasmania will take responsibility for this evaluation work, as facilitation of workforce development practices will be integral to our efforts to support the growth and resilience of this emerging industry. Activities to gather, analyse and act on relevant data will be incorporated into FermenTasmania's workplan over the coming years.

12 Acknowledgements

FermenTasmania is grateful to the many Tasmanian, fermentation-focussed enterprises and individuals who contributed to the design and delivery of this project.

Without the generous provision of time and insights from fermentation enterprise owners, all of whom provided open and honest appraisal of their own strengths and challenges in the workforce development arena, we could not have delivered the degree of analysis presented in this report.

RDS Partners staff provided conceptual and operational support to the project. We thank the following: Maree Fudge for project design advice, Ray Murphy for industry engagement, data collation and reporting, and Alice Doyle for project control and financial management.

We gratefully acknowledge management and staff of Skills Tasmania and the University of Tasmania, not only for providing funding support for this project, but also for their ongoing support of the Tasmanian fermentation industry. This support is helping FermenTasmania develop a strong and much needed basis from which to plan a sustainable future for this exciting sector.

Appendix **E**

Appendix E. Product development example – cider production

Cider production assumptions per batch

- Batch size – 2,000 litres
- Cost of apples – $150 per 400 kg bin
- 65 per cent extraction rate
- 4 per cent losses during cidermaking process
- Fixed expenses (including freight) double the total cost of goods sold (COGS)
- Assumes cider style falls under wine equalisation tax (WET) not excise and producer is eligible for full WET rebate
- 50 / 50 split between retail and wholesale sales
- Fermentation Tasmania fee of $7,500 has only been considered for one production batch of 2,000 litres. Final production is likely to be higher either through access to produce multiple batches or produce at an increased batch capacity under the access product development fee.

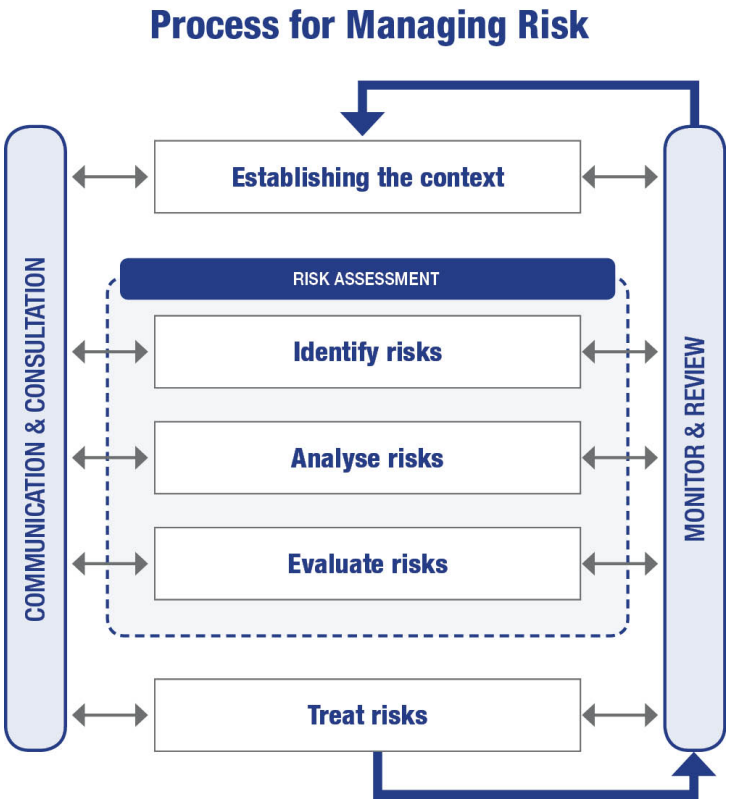
	Volume	Unit	Total cost ($)	Cost per litre ($/L)	Cost per 330 ml bottle ($/bottle)
Costs					
Apples	8	Bins	1,202	0.60	0.20
FermenTasmania product development fee		All	7,500	3.75	1.24
Bottles	6,061	Each	1,455	0.73	0.24
Labels	6,061	Each	606	0.30	0.10
Caps	6,061	Each	182	0.09	0.03
Cartons	253	Each	38	0.02	0.01
Total COGS			**10,982**	**5.49**	**1.81**
Total costs			**21,964**	**10.98**	**3.62**
Revenue					
Retail price			54,545	27.27	9.00
Wholesale price			24,242	12.12	4.00
Average revenue			**39,394**	**19.70**	**6.50**
Net margin			**17,429**	**8.71**	**2.88**

Source: FermenTasmania, 2020.

Appendix F. Risk assessment framework

The risk management framework for this project is aligned with Australian Standard AS/NZS ISO 31000:2009 Risk Management—Principles and Guidelines (Figure F.1).

Figure F.1: Process for managing risk



Source: Australian Standard AS/NZS ISO 31000:2009 Risk Management—Principles and Guidelines.

F.1 Establishing the context

The boundaries of risk management were identified as those risks associated with the development of the project. The project team determines the risk tolerance and is responsible for the management of associated risks.

F.2 Risk identification

Project risks identified through the internal and external workshops are documented in section 9.4.

F.2.1 Risk analysis and assessment

Risks were analysed and assessed through internal and external workshops. The Risk Analysis and Scoring Matrix (Table F.1) was applied to each identified risk during the workshops.

Table F.1: Risk Analysis and Scoring Matrix

Likelihood / consequence	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Medium (11)	Medium (16)	High (20)	Extreme (23)	Extreme (25)
Likely	Low (7)	Medium (12)	High (17)	High (21)	Extreme (24)
Possible	Low (4)	Medium (8)	Medium (13)	High (18)	High (22)
Unlikely	Low (2)	Low (5)	Medium (9)	Medium (14)	High (19)
Rare	Low (1)	Low (3)	Low (6)	Medium (10)	Medium (15)

The process relied on the description of risk likelihood in Table F.2, which was used during the workshops on risk that were conducted throughout the project.

Table F.2: Risk likelihood categories

Likelihood	Description	Example to assist stakeholders
Almost certain	The event is expected to occur in most circumstances	May occur once a year or more
Likely	The event will probably occur in many circumstances	May occur once every 3 years
Possible	Identified factors indicate the event could occur at some time	May occur once every 7 years
Unlikely	The event could occur at some time but is not expected	May occur once every 15 years
Rare	The event may occur only in exceptional circumstances	May occur once every 30 years

The range from ‘yearly’ to ‘every 30 years’ is appropriate for risks related to this project.

A simplified version of the descriptions of consequences of project risks was adopted. Table F.3 explains how to interpret the consequences for delivery of the project and the realisation of potential project benefits.

Table F.3: DNRME risk consequences—impact on business case delivery and realisation of benefits

Consequence	Insignificant	Minor	Moderate	Major	Catastrophic
Impact on realisation of project or option benefits	Negligible impact on realisation of project benefits	Minor impact on realisation of project benefits	Moderate impact on realisation of project benefits	Major impact on realisation of project benefits	Catastrophic impact on realisation of project benefits—cannot be realised

The qualitative guidance was adjusted to include quantitative guidelines for assessing the consequence for financial inputs as part of risk adjustments for each option.

Table F.4 explains the quantum of cost-related risk adjustments, considered as part of this business case, in terms of delivering and operating the project.

Table F.4: Risk adjustments for individual risks

Financial	Insignificant	Minor	Moderate	Major	Catastrophic
Consequence for the project	Financial loss can be absorbed	Financial loss requires reprioritisation	Financial loss requires additional customer funding	Financial loss requires significant additional customer funding	Financial loss with severe impacts on the project (e.g. customer capital funding)
Portion of capital cost as risk guide	0–1%	1–2.5%	2.5–5%	5–10%	>10%
Illustrative impact for a project with capex of $20 million	$200,000	$500,000	$1 million	$2 million	> $2 million

Financial	Insignificant	Minor	Moderate	Major	Catastrophic
assuming top of range ($ million) ^					

Note: ^ The illustrative impacts for the project have been calculated on an individual basis rather than as a combined or aggregated impact.

The tables above informed development of the risk register as part of ongoing workshops. An assessment of the overall project risk occurred after the analysis of each risk. The level of project risk compared to the risk tolerance level of the project team determined the amount of risk treatment necessary.

F.2.2 Risk treatment

Risk treatment occurs after assessment of the project risk. The project risk was treated through risk mitigation—mitigation measures were considered separately for each risk identified. These measures involved tolerating the risk, avoiding the risk, sharing the risk, reducing or controlling the likelihood of the risk, or reducing or controlling the consequences of the risk.

If high or extreme risks remain after all practical mitigation measures have been applied, such risks will be continuously monitored, and additional mitigation strategies will be developed during the project.

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