AUSTRALIAN MEAT PROCESSING INDUSTRY SECTOR

IRC Skills Forecast and

Proposed Schedule of Work

2018–2021

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IRC SKILLS FORECAST AND PROPOSED SCHEDULE OF WORK 2018–2021

Purpose

The IRC Skills Forecast represents the latest industry intelligence and the resulting proposed schedule of work of the Meat Industry Reference Committee (IRC). It was developed through research of national and industry data sources and ongoing input from IRC members and key stakeholders. The report is designed to provide the Australian Industry and Skills Committee (AISC) on the four-year rolling National Schedule of training product development and review work.

The report is structured according to the AISC template, in four main sections:

- **Sector Overview** – examining the depth and breadth of the industry and identifying the macro environment that currently challenges and provides opportunities for the industry.
- **Employment** – reviewing the employment projections by the Department of Employment and outlining the current workforce profile and supply for the industry.
- **Skills Outlook** – identifying the key priority skills for the industry, key drivers and how they can benefit from improvement or development of national skills standards.
- **Proposed Schedule of Work** – establishing the scope and timeframe of proposed training package development, in line with industry priority skills

The information within this IRC Skills Forecast is based on data obtained from various sources, with a key source being publically available information including that published by the Australian Bureau of Statistics (ABS). We are aware of the limitations of this data and as such this represents a starting point for feedback on industry structures and issue content. We welcome comments for inclusion to ensure the most up-to-date data and industry viewpoints are presented.

Administrative Information

Name of Applicable Industry Reference Committee (IRC):	Meat Industry Reference Committee
Name of Applicable Skills Service Organisation (SSO):	Skills Impact Ltd

Contents

A. Executive Summary

This report provides an overview of workforce development and skills needs for the Australian meat processing industry. The report was commissioned to support the Australian Industry and Skills Committee (AISC) in developing the four-year rolling National Schedule of training product development and review work. The report is structured, as per the AISC template, in four main sections as follows: Sector Overview, Employment, Skills Outlook, and Training Product Review Plan. Methods of analysis include research of published national and industry data sources and input from Industry Reference Committee (IRC) members and key stakeholders.

This report draws attention to the fact that a growing demand and export trade for meat in global markets provides this industry with potential for growth and new opportunities. The opportunities are also shaped by the industry's reputation as a supplier of safe, nutritious, ethically produced meat products; current government policies related to free trade agreements; market trends characterised by a growing focus on high-quality meat and livestock products; and availability and ongoing development of advanced technologies.

Further, compared with other industry sectors, the meat processing sector has the advantage of a younger workforce and a balanced age structure under 50 years of age. Attracting people to the industry is a continuing challenge for employers, and ongoing and structured training is becoming increasingly important to maintain business viability and competitiveness, as well as creating career pathways for industry employees.

Importantly, employers will increasingly seek specialised skills to support more demanding job functions in most workplaces as businesses respond to opportunities with new value creation strategies, capital structure strategies, product development, and investments in world-leading technologies, among many other innovations.

Examples of new job functions for operational employees include management, quality inspection, generation of information/reporting, process improvements, and technical maintenance. Similarly, higher-level skills will be required of specialist managers to support strategic developments and targets. This will include skills in strategic leadership and change management, marketing executives, developing investment projects, global supply chain and logistics, and other high-level skills.

Summary of Key Points in Each Section

Sector overview

- The meat processing industry can be described as having six sub-sectors: meat processing (abattoirs), poultry processing, smallgoods manufacturing, feedlots, wild game harvesting, and wholesaling and retailing of all of the above.
- The industry includes 1,215 processing businesses and around 6,000 wholesalers and retailers. The industry directly employs approximately 102,000[1] people.
- In general, the sector is characterised by a large number of small and medium-sized producers, producing for local or niche markets and a smaller number of large producers, which often are multinational companies and operate globally. The chicken meat industry is predominantly vertically integrated.
- Total sales turnover of the processing sectors increased by 12% (or $2.6 billion) to $25.5 billion between 2012–2013 and 2013–2014. IBISWorld predicts an annual growth rate of 7.7% to the end of 2018.[2]
- The industry is represented by about 18 peak organisations at a national and state level, including industry associations and industry services bodies such as research and development (R&D) corporations, employee associations and regulatory bodies.
- Key regulations for the industry include or are related to:
    - export certification for abattoirs
    - meat inspection services
    - licence to operate for all meat processing plants
    - Australian Standard *Hygienic production and transportation of meat and meat products for human consumption (AS 4696:2007)*
    - Food Standards Australia New Zealand
    - The *Biosecurity Act 2015* and various other standards that apply to meat processing
    - a wide range of commercial standards.
- Some customers, such as the European Union, have specific formal training requirements.

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[1] This figure was reached by adding together the employment figures for each sector quoted in IBISWorld.

[2] IBISWorld, 2017, *Meat processing in Australia: Market research report.*

- The only sector-specific occupation that is regulated[3] and requiring registration to operate is the role of meat inspector. The registration can be with a federal or state-based authority, depending on the nature of the enterprise.
- Key macro forces that currently provide challenges and opportunities for the industry include the following.
  - Competitiveness in both domestic and international markets provided by higher expectations from consumers, retailers and governments of high environmental and ethical standards, including food safety and animal welfare, greater diversification of markets, and the emergence of large-scale smallgoods production facilities.
  - Growing demand for meat in global markets and fluctuating prices for livestock, which creates challenges and opportunities for the Australian red meat and livestock industry sub-sector to improve productivity and export trade.
  - Australia's social and environmental objectives, which demand continuous improvement of sustainable farming practices and stewardship of environmental resources, including adaptation to climate variability.
  - Australia's rapidly rising energy prices and the need to identify energy efficiencies and alternative sources of energy.
  - The continuing rollout of the Department of Agriculture and Water Resources Export Meat Systems Audit Program (EMSAP), which places greater responsibility onto export processors to ensure that their management system fulfils requirements.
  - Supportive government policies, such as free trade agreements, which bring strong benefits to the industry through reductions in export tariffs and increase international competitiveness. At the same time, the impact of non-tariff restrictions needs to be systematically addressed.
  - Existing and ongoing development of enabling technologies, which allow for automation of manual tasks including more efficient handling of carcases, improved resource efficiency, electronic traceability systems, and integrated packaging of boned and sliced product.

Employment

- Employment in the meat processing sector is anticipated to remain stable to November 2020.
- About 6% of the industry workforce is likely to retire over the next five years.
- A significant proportion of the workforce occupies roles specific to the industry, including meat and poultry process workers, meat boners and slicers, slaughterers, butchers and

[3] Regulated occupations have legal (or industry) requirements or restrictions to perform the work. Regulated occupations require a license from, or registration by, a professional association or occupational licensing authority.

smallgoods makers and livestock handlers. A significant workforce is also employed to undertake packing, warehousing, marketing and more general roles such as clerical and administrative work. The sector also employs people for a range of other jobs, such as forklift drivers, commercial cleaners, engineers, metal fitters and machinists, and production managers.

Skills outlook

All qualifications, skill sets and units of competency in the AMP Australian Meat Processing Training Package will require a full review over the four-year timeframe of this Work Plan.

Priority skills in the Australian meat processing industry over the next four years, 2018–2021, are summarised in the table below:

Table 1: 2018–2021 priority skills for the meat processing industry.

PRIORITY SKILL	DRIVERS	TRAINING PACKAGE SOLUTION
Management Skills – review of the Diploma and Advanced Diploma qualifications	Training for management skills occurs at the Diploma and Advanced Diploma level. A number of changes both within industry and to the training package/units of competency that necessitates a review of the Diploma qualifications. Drivers include the following. Due to low enrolment since its introduction in 2000, it is proposed that the Diploma of Meat Processing (Meat Retailing) should be removed from the *AMP Australian Meat Processing Training Package*. However, to ensure that the future career development needs of meat retailers is still met, relevant units will be incorporated into Diploma of Meat Processing. There is an increasing industry requirement for vertical integration of staff within organisations and through different sectors. A qualification review will ensure that mobility of staff needs will be met during training. The poultry processing and feedlots sub-sectors were not considered when these qualifications were	Deletion of obsolete qualifications but retain units that are still relevant within industry in the Diploma of Meat Processing. Review 28 units for suitability and industry currency. Develop up to ten units to meet the expanded training package scope.

| | developed. Both sub-sectors, under the auspices of the Meat Industry Standing Committee, are now moving towards the inclusion of higher-level qualifications as part of their career planning. The scope and content of these higher-level qualifications need to be reviewed to ensure that the management development needs of these sub-sectors are addressed. In particular, both sub-sectors have indicated that project and financial management are high priorities.

The speed of technological development, automation and use of Big Data are rapidly impacting the management development requirements of the industry. It is proposed that the new units being developed as part of the cross-industry projects be considered for inclusion in the Diploma and Advanced Diploma of Meat Processing.

Some current imported units have been updated in their own training packages, becoming less suitable for use in the meat industry. For example, *SIRXMGT005A Set strategic plans.* A review for suitability of all imported units is required to ensure compliance and relevance of units are current to the industry. | |
|---|---|---|
| Undertake workplace incident investigations | This project is for the development of a new unit of competency for the planning, implementation and reporting of an investigation into a workplace incident. An incident within a meat processing plant can refer to a broad number of incidents, e.g. WHS, animal welfare or environmental incidents.

In the past, investigations have been the responsibility of external authorities or third parties, and this remains the case where there are serious incidents. Current trend is to move broader responsibility to enterprise and to monitor the effectiveness of documented | Development of one unit of competency. |

	processes and compliance through auditing processes.	
Operation and management of biogas facilities in a processing plant	Biogas is the product of anaerobic biological breakdown of organic substances. Anaerobic ponds are a common treatment step of wastewater produced by the meat industry. Biogas is both a valuable fuel and a greenhouse gas (contributing towards carbon emissions). Captured biogas can be used to fuel a boiler or for co-generation. The burning of biogas also significantly reduces carbon emissions. Hence, the covering of the anaerobic ponds to capture and collect biogas has become a popular practice. As the capture of biogas becomes more common, company safety and regulatory responsibilities are increasing, as is need for companies to manage their biogas risks.	Develop two units of competency.
Animal health data collection, evaluation and monitoring	The monitoring and control of a range of diseases has commercial drivers for both producers and processors. The incidence and management of diseases and conditions, as well as the productivity and fertility implications, have important financial and animal welfare impacts that affect both the producer and process levels of meat production. Development of training will allow for accurate and timely data analysis related to animal health for feedback into the meat processing industry, allowing for real-time business response. It also provides the added benefit of promoting supply chain relationships when information can be provided in a timely and accurate manner. Currently there is an industry-wide initiative under the federally-funded Health 4 Wealth project, 'Enhancing supply chain profitability through reporting and utilisation of peri-mortem information by livestock	Develop one unit of competency.

	producers'. Training strategies in animal health data collection, evaluation and monitoring supports this initiative.	
Preparation of markets reports for beef and sheep	In response to recommendation made in the Rural and Regional Affairs and Transport Committee report, *Effect of market consolidation in the red meat processing sector*, two units will be developed for the preparation of market reports at the point of purchase in saleyards. Meat and Livestock Australia's (MLA) market reporters use a nationally standardised language for the description of livestock put up for sale, which includes a combination of sex, age, fat and degree of muscularity. The aim of the language is to provide a more accurate depiction of the market, highlighting aspects that will contribute to the ultimate price of the animal. Will support the adoption of a standardised training program to support the use of this language to describe the stock and the prices achieved at saleyards.	Develop two units of competency.
Improving meat quality	There are small differences in meat palatability between animal sexes, consequently identification of secondary sexual characteristics is important to ensure the carcase is correctly classified under the Meat Standards Australia (MSA) system. The purpose of the MSA system is to give the consumer knowledge of meat palatability. A new unit will be developed for the identification of secondary sexual characteristics in beef. Some meat industry customers are now requiring evidence that meat processing personnel have the skills to recognise and assess secondary sexual characteristics, such as muscles on the neck and shoulder, inguinal canal and pubic tubercle.	Develop one unit of competency.

B. SECTOR OVERVIEW

Sector description

The Australian meat processing industry comprises processors, retailers and exporters who together are responsible for guaranteeing the supply of meat to domestic and international markets.

Australia exports $7 billion of beef and cattle annually, making this sector one of the country's most valuable farm contributors. Sheep meat and sheep exports are worth around $1.6 billion, and goat meat and goats approximately $55 million. Combined, these represent around 23% of total Australian farm exports. Over 70% of red meat production is exported to 110 countries worldwide.

The Australian red meat industry has a total annual value of over $17 billion and is one of the world's largest exporters of red meat and livestock. Approximately 350,000 people are involved either directly in the supply chain or in businesses that service the industry.[4] The Australian domestic market is the industry's largest single market.

The pork industry is focused predominantly on the domestic market, while maintaining a small export industry to New Zealand and Singapore (valued at $101 million).[5] Competition with the increasing volumes of subsidised imports from North America and Europe continues to be an issue for the industry.

The Australian production system is diverse, offering a wide variety of products to customers and consumers. Products include high-quality, tenderness-guaranteed eating products, and hides and pharmaceutical ingredients.

The industry is renowned for its efforts in meeting customer requirements. Major international customers for Australian beef are China, Japan, the US and Korea, with the US and the Middle East the dominant export markets for lamb, mutton and goat meat.

The Australian meat industry has an enviable international reputation as a leader in food safety, meat-eating quality, animal welfare and disease control. This reputation allows access to all global markets where over three million tonnes of Australian product is collectively consumed each year.

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[4] The MLA, October 2017, *State of the industry report: the Australian red meat and livestock industry* states that the red meat and livestock industry employed 178,900 people in 2015–2016.

[5] MLA, *Fact sheet: pork and exports.*

The chicken meat industry is predominantly vertically integrated. Generally, individual companies own almost all aspects of production – breeding farms, multiplication farms, hatcheries, feed mills, some broiler growing farms and processing plants. This sub-sector has grown over the past five years due to the popularity of its processed products, with an annual revenue of $7 billion. Growing demand for chicken meat has been supported by its lower price compared with other meats, and aided by dramatic improvements in production efficiencies.[6]

Smallgoods, including sausages, salamis, bacon, hams, pates and dried, roasted and preserved meat products, are mainly consumed by the domestic market. IBISWorld estimates the total revenue of the industry at $4 billion with the four top players accounting for less than 50% of total revenue. [7] A significant amount of Australian smallgoods product continues to be manufactured by smaller speciality processors.

The meat wholesaling sub-sector is a growing sector of newly emerging companies, primarily made up of boning rooms and value-adding establishments servicing the hospitality and supermarket industry.

Meat retailers in Australia include traditional independent butchers, supermarkets, butcher shop chains, and gourmet and specialist retail meat outlets. The Australian Meat Industry Council (AMIC) estimates about 2,700 independent butchers operate throughout Australia, employing about 8,500 people. Woolworths and Coles dominate the supermarket distribution of meat products, with figures produced by Meat and Livestock Australia (MLA) in 2016 indicating that these two companies alone accounted for about 68% of beef, lamb and pork sales.

A cattle feedlot, a facility where livestock are provided with a balanced and nutritious diet to ensure beef is produced of consistent quality and quantity. Around 2% of Australia's cattle population are located in feedlots.

Relevant Training Package Qualifications

The *AMP Australian Meat Industry Training Package* provides current and applicable training across the broad range of meat processing occupations. It comprises 26 qualifications, 60 skill sets, 443 units of competency, and a further 229 imported units.

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[6] Source: IBISWorld, June 2016. *<http://www.ibisworld.com.au/industry/default.aspx?indid=91>.*

[7] As above.

Note 1: There is currently only one qualification specifically developed for the Australian feedlot industry: Certificate III in Feedlot Operations (AHC33311). There has been minimal uptake of this qualification. Until recently, training in the feedlot industry has been relatively ad hoc; however, under the leadership of the Australian Lot Feeders Association (ALFA), the industry is currently developing an industry-wide strategic training plan, which is the first step towards a structured training system. While there are currently few drivers to move towards nationally endorsed training, this is likely in the future.

AMP Qualifications

Qualification Level: Certificate II

Certificate II in Meat Processing (Food Services)

Certificate II in Meat Processing (Smallgoods)

Certificate II in Meat Processing (Abattoirs)

Certificate II in Meat Processing (Meat Retailing)

Qualification Level: Certificate III

Certificate III in Meat Processing (Boning Room)

Certificate III in Meat Processing (Food Services)

Certificate III in Meat Processing (Meat Safety)

Certificate III in Meat Processing (Rendering)

Certificate III in Meat Processing (Slaughtering)

Certificate III in Meat Processing (General)

Certificate III in Meat Processing (Quality Assurance)

Certificate III in Meat Processing (Retail Butcher)

Certificate III in Meat Processing (Smallgoods - General)

Certificate III in Meat Processing (Smallgoods - Manufacture)

Certificate III in Meat Processing (Livestock Handling)

Certificate III in Meat Processing (Packing Operations)

Qualification Level: Certificate IV

Certificate IV in Meat Processing (General)

Certificate IV in Meat Processing (Leadership)

Certificate IV in Meat Processing (Quality Assurance)

Certificate IV in Meat Processing (Meat Safety)

Qualification Level: Diploma

Diploma of Meat Processing (Meat Retailing)

Diploma of Meat Processing

Qualification Level: Advanced Diploma

Advanced Diploma of Meat Processing

Qualification Level: Graduate Certificate

Graduate Certificate in Agribusiness

Qualification Level: Graduate Diploma

Graduate Diploma of Agribusiness

Sector Analysis

Sub-sector description and analysis of businesses involved

Sub-sector Name	Abattoirs
Scope of Work	**Beef and veal** Australia is one of the world's most efficient producers of cattle and the world's third largest exporter of beef. IBISWorld estimates industry revenue to be $21.1 billion, with the four largest players accounting for an estimated 41.1% of revenue. Australian cattle slaughter over the next five years is expected to decrease from 9.5 to 8.9 million head, as re-stocking occurs after a period of drought across northern Australia. Australia exports $7 billion worth of beef and cattle annually, making this sub-sector one of the country's most valuable farm contributors. Over the next five years, the major markets will continue to be the US, Japan, Republic of Korea and China.[8] However, increasing competition from the US in the chilled beef market, especially into Japan, is driving the chilled beef indicator down.[9] **Sheep meat** Australia is one of the world's leading producers of lamb and mutton, the largest exporter of mutton and live sheep, and the second-largest exporter of lamb. The domestic market are among the biggest consumers of lamb in the world. The off-farm meat value of the sheep meat industry is $5.2 billion.[10] The Australian sheep flock decreased by 2% to 71 million in 2015.[11] In 2017–2018, lamb slaughter is forecast to increase by 2% to 22.8 million head, reflecting increased lamb markings. Lamb production is forecast to increase by 1% to 512,000 tonnes, reflecting a forecast fall in carcase weights in response to less-favourable pastures. In 2017–2018, sheep slaughter is forecast to fall by 1% to 6.5 million head and mutton production by 1%. This forecast reflects continued retention of breeding ewes and lower forecast carcase weights following a return to drier conditions.[12] Changes over the next five years include a gradual

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[8] The Australian Bureau of Agricultural and Resource Economics (ABARES), 2015, *Agricultural commodities.*

[9] ABARES, September 2017, *Agricultural commodities*

[10] MLA, 2015, *Australia's sheepmeat industry.* <http://www.mla.com.au/Cattle-sheep-and-goat-industries/Industry-overview/Sheep>.

[11] MLA, October 2017, *State of the industry report: the Australian red meat and livestock industry*, p. 42.

[12] ABARES, September 2017, *Agricultural Commodities*, p. 66.

replenishing of the national sheep flock after a prolonged period of drought, and this is on target to achieve the numbers expected to increase from 71 million head in 2015 to 76 million in 2019–2020.

Sheep meat exports are worth around $1.9 billion, with strong export demand expected to keep prices high at around 510 cents per kilogram paid to producers selling over the hook. Demand from the US, Middle East and China is likely to remain particularly strong, while the smaller markets of Japan, South East Asia and the European Union will continue as important markets to the industry. Increased incomes, due to the forecast higher oil prices and assumed stronger economic growth, are expected to result in increased exports to some Gulf Cooperation Council members.[13]

Domestic lamb consumption has been in a long-term decline, from 23.8 kilograms per person in 1971–1972 to 8.9 kilograms per person in 2013–2014. The current rate of consumption is expected to remain the same over the next few years.[14]

Goat meat

Over the past 20 years, the Australian goat meat industry has experienced strong growth, largely underpinned by the sale of goats derived from rangeland or extensive production systems. Australia is the world leader in goat meat exports, with around 95% of goat meat sent offshore (mostly to the US and Asia), accounting for around 50% of the global goat meat trade. Average goat prices have increased by 177% between 2013 and 2016.[15]

Around 90% of Australia's meat production is derived from rangeland goats, the majority mustered from semi-arid western regions of the eastern states. The rangeland goat population was estimated to be between 4–6 million head in 2011, but an accurate measure of the population is difficult due to the vast spread of the population and its ability to rapidly reproduce under favourable seasonal conditions.[16]

MLA recently produced a range of new resources and tools to assist goat producers in improving their profitability and productivity. There is a need to both raise awareness within the industry of these new resources to increase usage, and to recruit producers into extension programs for long-term business gains.

Pork processing

The pork industry is one of the few Australian food industries operating in a truly global marketplace, maintaining a small export industry to New Zealand and Singapore, and competing with increasing volumes of subsidised imports from North America and Europe. Increasing competition from imports is regarded as one of the major challenges facing the industry. The industry

[13] Ibid, p. 67.

[14] ABARES, 2015, *Agricultural commodities*.

[15] MLA, October 2017, *State of the industry report: the Australian red meat and livestock industry*, p. 51.

[16] MLA, 2015, *Australian goat industry summary*.

is currently exploring access to new markets, such as China, for the export of fresh pork.

The Australian Bureau of Agricultural and Resource Economics (ABARES) predicts that pig meat production will continue to rise gradually to 410,000 tonnes over 2015–2020, with domestic production directed mainly to the fresh market. However, there has been a sharp (24%) price decline between December 2016 and June 2017 because of strong growth in supply and increased competition from alternative meats.[17]

De-boned pig meat imports are allowed into Australia from approved countries, subject to specific import conditions, and must be cooked before sale. More than 60% of imports came from the US and the European Union.[18]

Current industry initiatives focused on product quality include: developing and testing of consumer messages of 'how to cook' pork; determining and validating key production, processing, post-slaughter and cooking practices to optimise eating quality of different pork cuts in order to implement a cuts-based eating quality system into industry, as well as understanding the effects of low ultimate pH on pork eating quality.[19] Trace element fingerprinting through Physi-Trace technology to prove origin and guarantee provenance and lean meat yield (LMY) assessment through PorkScan is also being introduced.

Other species

Australian animals, such as kangaroos, possums, crocodiles and emus, and introduced animals such as horses and pigs, are the basis of significant commercial industries for human consumption and pet food.

Other species such as ratites (emus and ostriches), deer, crocodiles, llamas, alpacas, mutton birds and rabbits are also processed in Australia. Most of the meat is processed for domestic consumption, although skins, feathers, oils, etc. are often specialty export products.

Where they can be harvested humanely and, in the case of native animals, sustainably, wild animals can be profitable supplements or alternatives to domestic animals. Their commercial use can also contribute to pest management objectives.

| **Processors** | The sub-sector is dominated by seven major participants, including significant foreign ownership, large-scale and multinational operations: |

- JBS Australia Limited (including Australian Consolidated Food Investments)
- Teys Australia Limited
- Thomas Foods International
- NH Foods Australia
- Northern Cooperative Meat Company

[17] ABARES, September 2017, *Agricultural commodities*, p. 73.

[18] Ibid., p. 74.

[19] Australian Pork Limited, 2015, *Product quality. <http://australianpork.com.au/industry-focus/product-quality/>*.

- Fletcher International
- Rivalea Australia.

However, there are over 140 meat processing establishments of varying sizes across Australia.

Geographical Location	There are processing plants throughout Australia, with the highest concentration on the eastern seaboard. Most processors are located in regional towns, although there are some large processors in the outer metropolitan areas of Brisbane, Gold Coast and Melbourne. In many cases, the meat processing enterprise will be one of the largest employers in a regional location and will have a significant impact on the local economy.
Automation and Digitisation	The sub-sector features a growing level of technological development and computerisation, particularly in relation to WHS and production line efficiencies. A high level of capital investment has been undertaken to reduce the environmental impact of the sub-sector over the past decade through solutions involving energy efficiency, waste-water and biomass systems. As a matter of process, implications and adjustment to the training system are considered and addressed as part of the implementation process. A significant development over the past 12 months has been the development of objective carcase measurement technologies. This technology seeks to develop a single scientific measurement of lean meat yield, as well as systems to collect and use data across supply chains for future research and development. This includes genetics, animal health and husbandry, processing automation and other productivity improvements on- and off-farm. The training implications of the roll-out of this new technology are currently being monitored by the Meat IRC. The current review of the post-mortem procedures under the Australian Standard *AS 4696:2007 Hygienic production and transportation of meat and meat products* will require updating of current training materials and may also raise a need for professional development and additional training activities.

Sub-sector Name	**Meat Retailing**
Scope of Work	The meat retailing sub-sector focuses on producing and supplying meat products to meet customer needs, and further processing and value-adding to meat products to meet demands for pre-prepared and pre-cooked products. There is growing interest in the provenance of livestock, such as grass-fed, outdoor-bred and free-range. Meat retailers increasingly provide food preparation, storage and cooking advice to customers, in response to a growing resurgence of interest in home cooking and non-traditional meat dishes.

There is also a growing trend towards further processing and supplying meat products from a variety of different animal species, including poultry, game meat, rabbits and native animals, and combining meat with other food products to produce specific product to meet local needs.

The meat retailing sub-sector is facing increasing regulation, particularly in food safety and quality assurance (QA). There are changes in work organisation and work arrangements, including longer opening hours, and increasing skills demands in technology, food safety, QA, WHS, marketing, customer service and finances.

Many meat retailers are diversifying their businesses to provide whole meal solutions; pre- or partially-cooked meals; grocery, bakery and consumable items, and café-style dining options. There is also increasing evidence of food trucks and pop-up restaurants. These trends will have an impact on the range of skills required by industry.

Retailers are also adopting alternative forms of packaging, such as vacuum-seal pouches and thermo-form packaging that offers shelf-life advantages and novel display opportunities, and packaging that includes stronger, puncture resistant plastic materials.

Enterprises	Meat retailers in Australia include traditional independent butchers, supermarkets, butcher shop chains, and gourmet and specialist retail meat outlets. IBISWorld estimates that there are over 4,600 individual enterprises, and most independent retailers are represented by their peak body, the AMIC. The estimated workforce size is 26,475.[20]
Geographical Location	Meat retailing enterprises are located in nearly every community across Australia.
Automation and Digitisation	There is a growing trend towards the use of electronic financial systems, and increasing impact of information technologies, particularly on marketing and supply of products, such as via the internet and social media.

Sub-sector Name	**Smallgoods Manufacturing**
Scope of Work	Smallgoods are meat products where the meat has been manufactured to form a new product, such as sausages, salamis, bacon, hams, pates, and dried, roasted and preserved meat products. Smallgoods are made from pig meat and other meats, such as poultry, mutton and beef. Pork represents

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[20] IBISWorld, December 2017, *Fresh meat, fish and poultry retailing in Australia: Market research report.*

anywhere from 60–80% of the smallgoods sub-sector's meat input, of which 60% comes from imported pig meat.

Australian produced smallgoods products are mainly consumed by the domestic market. The largest product segment offered by the industry is bacon.

New industry products have included gluten-free, low-fat and low-salt smallgoods, along with a growing array of artisan style products. Increasingly sophisticated consumer palettes have helped drive these developments. Packaging innovations have also supported industry growth, with some products now available in single-serve packaging, while others are pre-diced to make them more convenient.[21]

Over the past five years, this product segment has increased from 35.6% to 39.9% of industry revenue.[22]

Enterprises	Australia's $4 billion cured meats and smallgoods industry includes 207 businesses and employs more than 8,200 people. The two major processors are: • Primo Smallgoods (now part of JBS Australia) • George Weston Foods. The industry has experienced significant consolidation over the last five years. However, a significant proportion of Australian smallgoods product continues to be produced by smaller speciality processors.
Geographical Location	Concentrated along the eastern seaboard, with VIC, NSW and QLD combined accounting for a little over 70% of the total number of establishments.
Automation and Digitisation	Technological changes have been implemented in this sub-sector through adoption of new equipment and the computerisation of processes, particularly by the larger businesses with a focus on volume and efficiency of production.

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[21] IBISWorld (2017), *Cured meat and smallgoods manufacturing in Australia: market research report.*

[22] Ibid.

Sub-sector Name	Meat Wholesaling/Food Services
Scope of Work	The meat wholesaling sub-sector is a growing sector of both long-established and newly emerging companies, primarily made up of independent boning rooms and value-adding establishments servicing the hospitality industry and supermarkets. These establishments supply restaurants, fast-food outlets, food chains, hotels, airlines, and supermarkets and also fill niche markets, making specific products; for example, portion control products, organic meat products, native meat products, meat patties, pizza toppings, meat products with health benefits, kebabs, and trimmed and pre-packed shelf-ready trays of meat.

IBISWorld estimates the sector to generate an annual revenue of $15 billion across 1,400 businesses, and a total workforce of 10,600. However, it should be noted that these figures include poultry and smallgoods wholesaling.[23] |
Enterprises	There is an increasing trend for major processors to add boning, wholesale and value-adding processing facilities to their operations, often in more metropolitan locations. Some of the major supermarkets are also moving towards more centralised retail-ready meat preparation facilities.
Geographical Location	Businesses are increasingly being located in metropolitan areas, close to retail outlets, in VIC, NSW, SA, WA and QLD. There are no dominant businesses.
Automation and Digitisation	Technological changes through adoption of new equipment and the computerisation of processes have been implemented in the sub-sector particularly by the larger businesses with a focus on efficiency and volume of production. Although these changes have not resulted in a direct need for new units, they have encouraged a greater uptake of the food services qualifications.

Sub-sector Name	Wild Game Harvesting
Scope of Work	A wild game animal is an animal that has not been owned, controlled, herded, penned or confined prior to shooting. This sub-sector includes licensed wild game harvesters and mobile depots that harvest wild game, which includes kangaroos, wallabies, pigs, goats, deer, rabbits, hares and brushtail possums, for pet food and human consumption, and for a limited export market. This sub-sector does not include farmed game.

[23] IBISWorld (2017), *Meat, poultry and smallgoods wholesaling in Australia: market research report.*

Since the closure of the Russian market in 2013, there has been minimal export of wild game meat products, although there has been a gradual strengthening domestic market.

Enterprises	For the most part, wild game harvesters are individual operators. The 'depots' are mobile chillers that receive shot game and transport the product to licensed processors.
Geographical Location	Wild game harvesting covers broad geographical areas such as western QLD, NT, western NSW, northern SA and WA.
Automation and Digitisation	No automation and digitisation of note.

Sub-sector Name	Poultry Processing
Scope of Work	Companies in the industry process live poultry (including chickens, ducks and turkeys) into cuts and value-added products. Industry operations begin when live poultry is purchased for processing (usually aged between five and eight weeks) and includes abattoir operation, dressing, frozen poultry manufacturing, poultry meat manufacturing and poultry packing. The industry's involvement ends at the initial point of sale of poultry products. In 2017–2018, Australian chicken meat production is forecast to increase by 4% to 1.3 million tonnes (carcase weight), reflecting low-feed grain prices. Chicken slaughter is forecast to increase by 4% to 680 million birds. A marginal increase in average carcase weight is also expected. Australian chicken meat consumption is forecast to increase by 3% year-on-year to average just under 50 kilograms per person in 2017–2018. Chicken meat is expected to remain the most consumed meat in Australia, accounting for around 44% of the total volume of domestic meat consumption.[24]

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[24] ABARES, September 2017, *Agricultural commodities,* p. 70.

Exports (mainly to Papua New Guinea and the Philippines) are forecast to increase slightly, but still form a very small proportion (around 4% of domestic production) of the chicken meat market.

IBISWorld estimates current employment in the industry to be 18,240.[25]

Enterprises	The four largest industry enterprises account for a little over 65% of industry revenue. Market share concentration has been increasing significantly since the early 1980s due to the continual development and growth in size of the major industry players.

The industry is largely dominated by two larger companies:

- Inghams Australia
- Baiada Poultry. |
| **Geographical Location** | Baiada Poultry operates eight processing plants, while Inghams Australia operates seven processing plants. These, along with several medium to small-sized operators, are mostly located in regional areas of Australia. |
| **Automation and Digitisation** | Over the past five years, the continued automation of processes in the industry has reduced the reliance on labour for most industry operators.[26] |

Sub-sector Name	Feedlots
Scope of Work	The cattle feedlot industry has a value of production of approximately $2.5 billion and directly employs about 2,000 people.[27] In 2016, Australia had 887,600 cattle on feed, representing 73% of national feedlot capacity.[28]

Cattle are taken to feedlots for two key reasons. First, Australia's dry seasons and/or years result in pastures that have insufficient nutritional value to allow cattle to reach customer requirements in a timely and sustainable manner. Notably, cattle require increasing nutrition as they |

[25] IBISWorld, December 2017, *Poultry processing in Australia.*

[26] IBISWorld, December 2017, *Poultry processing in Australia.*

[27] MLA, October 2017, *State of the industry report: the Australian red meat and livestock industry*, p. 20.

[28] Ibid, p. 31.

age, placing greater pressure on pastures and the environment. Second, consumers in Australia and overseas actively demand grain-fed beef due to the industry's ability to consistently meet market requirements for quality and quantity, irrespective of seasons or droughts.

The feedlot sub-sector has grown over the past 20 years. The ability to deliver consistent quality and quantity (regardless of seasons) is a desirable trait for customers in both domestic and international markets. Approximately 40% of Australia's total beef supply and 80% of beef sold in major domestic supermarkets is sourced from the cattle feedlot sub-sector.

Enterprises	There are around 400 accredited feedlots throughout Australia; the majority located in areas that are near cattle and grain supplies. Many of these are now vertically integrated with processors.
Geographical Location	The largest state in terms of cattle numbers on feed is QLD, with approximately 60%; followed by NSW with 30%, VIC with 7% and the remainder shared between SA and WA.
Automation and Digitisation	Current investment in this sub-sector includes research in the areas of disease detection, pen cleaning and feeding. Environmental management and productivity improvements, leadership development and succession planning are also major areas of focus for the industry.

Relevant stakeholders

The meat processing industry is represented at the national level by the following organisations:

Table 1: Relative number of the industry peak bodies.

Category	Number
Industry sector associations	6
Regulatory bodies	10
Employee associations	1
Industry R&D services bodies	3
Industry services bodies	1

	21
Total	**21**

Table 2: Peak industry sector organisations.

Categories – Peak Industry Sector Organisations	Geographical Representation
Industry Sector Associations	
Red Meat Advisory Council	National
Australian Meat Industry Council	National
Australian Pork Limited	National
Kangaroos Industry Association Australia	National
Australian Lot Feeders Association	National
Goat Industry Council of Australia	National
Red Meat Advisory Council	National
Regulatory Bodies	
Department of Agriculture and Water Resources	National
PrimeSafe	Victoria
South Australian Meat Hygiene Unit	South Australia
NSW Biosecurity and Food Safety	New South Wales
Safe Food Production Queensland (SafeFood Qld)	Queensland
Department of Health	Western Australia
Department of Primary Industries, Parks, Water and Environment	Tasmania
Department of Primary Industries and Resources	Northern Territory
AUS-MEAT	National
Employee Associations	
Australasian Meat Industry Employees Union	National
Industry R&D Services Bodies	

Categories – Peak Industry Sector Organisations	Geographical Representation
Australian Meat Processor Corporation	National
Meat and Livestock Australia	National
AgriFutures Australia	National
Industry Services Bodies	
National Meat Industry Training Advisory Council (MINTRAC)	National

Industry and Occupational Regulations and Standards

Seventy per cent of meat consumed in Australia is produced in export-registered abattoirs under the control of the federal Department of Agriculture and Water Resources. The Department regulates export operations in all states and territories. Apart from export certification, the Department supplies a meat inspection service (including veterinarians and meat inspectors) and regulatory oversight by area technical managers.

In order to supply meat to the domestic market, all meat processing plants must be licensed with the relevant state/territory authorities. Most authorities have different classes of licence, depending on the type of animal/meat being processed.

Since the early 1990s, the regulation of the domestic meat industry has been conducted by state-based Meat Hygiene Authorities. The extent and methods vary somewhat between states, but all must meet the agreed Australian Standards, which are reflected by legislation in each state.

These authorities are:

- PrimeSafe-Victoria – regulates meat hygiene
- The South Australian Meat Hygiene Unit – part of the Department of Primary Industries and Resources (PIRSA)
- NSW Biosecurity and Food Safety (formerly the Meat Branch of NSW Food Authority) – responsible for meat hygiene regulation
- Safe Food Production Queensland (SafeFood Qld) – incorporates all aspects of food safety in all food products, including meat, for
- The Tasmanian Government Department of Primary Industries, Parks, Water and Environment – regulates the meat industry

- In Western Australia, meat hygiene is controlled by the Department of Health with input from the Western Australian Meat Industry Authority
- In the Northern Territory, the Department of Primary Industries and Resources regulates the meat industry.

All state-/territory-based meat hygiene authorities base their legislation on the Australian Standards, in particular, *AS4696:2007 Hygienic production and transportation of meat and meat products for human consumption.*

The Australian Standards also apply to wholesale businesses handling raw meat. Once a product is further processed by cooking, drying or fermentation, it is regulated by food authorities applying the Australia New Zealand Food Standards Code, although the *AS 4696:2007 Hygienic production and transportation of meat and meat products for human consumption* also applies.

Meat Standards Australia (MSA) is a voluntary eating-quality grading system underpinning the buying and cooking Australian beef and lamb. All products identified with the MSA symbol must meet strict criteria to ensure they achieve consumer expectations for tenderness, juiciness and flavour. Only licensed producers can apply the MSA grading system. Australian brands can choose to underpin the eating quality of their products by using MSA standards and grading specifications. These brands may also have additional specifications, which can be applied at grading.

Most retail activity is controlled by state/territory food authorities and by local councils.

AUS-MEAT is a non-profit company limited by guarantee that is wholly owned by its member bodies, MLA and AMPC. The AUS-MEAT National Accreditation Standards ensure that processors' quality systems are independently audited and cover quality assurance procedures throughout every step of the process, from handling, storage, processing and packaging through to labelling and description of meat products. This ensures meat products are produced by trained staff and monitored throughout production by accredited personnel. The standards are essential to the international reputation and integrity of Australia's red meat export market.[29]

Australian Standards that apply to meat processing

There are Australian Standards that apply to meat processing. Meat that is further processed by cooking, drying or fermentation must also meet the requirements of the Australia New Zealand Food Standards Code.

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[29] AUS-MEAT. [www] https://www.ausmeat.com.au

The Australian Standard that applies to meat processing depends on the type of processing that is occurring. The various Standards and how they apply are listed below:

- *AS 4696-2007 Hygienic production and transportation of meat and meat products for human consumption* – As discussed above.
- *AS 5812-2017 Manufacturing and marketing of pet food* – This standard provides requirements for the manufacture and marketing of pet food intended for consumption by domesticated cats and dogs.
- *AS 4464-2007 Hygienic production of game meat for human consumption* – This Standard applies to game animals shot in the field and processed at game processing plants.
- *AS 4466-1998 Hygienic production of rabbit meat for human consumption* – This Standard applies to rabbits and hares, both those shot in the field and raised commercially.
- *AS 5010-2001 Hygienic production of ratite (emu/ostrich) meat for human consumption* – This Standard applies to emus and ostriches processed at specialist abattoirs with full ante-mortem and post-mortem inspection.
- *AS 4465-2006 Construction of premises and hygienic production of poultry meat for human consumption* – This Standard applies to all poultry processing including further processing such as boning and packing.
- *AS 4467-1998 Hygienic production of crocodile meat for human consumption* – This Standard applies to all crocodile processing including further processing such as boning and packing.
- *AS 5011-2001 Hygienic production of natural casings for human consumption* – This Standards applies only to casing manufacture from animal intestines, not artificial casings.
- *AS 5008-2007 Hygienic rendering of animal products* – This Standard applies to rendering of meat by-products from slaughtering and processing for the production inedible tallow and meat meal.
- The *Biosecurity Act 2015* – This Act has replaced the *Quarantine Act 1908*, and sets up new requirements and regulatory powers that will affect how the Department manages the biosecurity risks of goods, people and conveyances entering Australia.

In addition to the above Australian Standards, meat processors must also comply with the *Biosecurity Act 2015*. This Act has replaced the *Quarantine Act 1908*, and sets up new requirements and regulatory powers that will affect how the Department manages the biosecurity risks of goods, people and conveyances entering Australia.

Meat inspection standards

There are three tiers of meat inspection standard in Australia, based on the level and type of meat inspection system in place:

- Tier 1 – Australian Standards
- Tier 2 – Requirements set by overseas governments for access to their markets
- Tier 3 – Market-specific requirements.[30]

Professional accreditations in the industry

The only sector-specific occupation that requires a licence is the role of meat inspector, and registration can be with a federal or state authority, depending on the nature of the enterprise. Veterinarians and Animal Welfare Officers also require formal qualifications.

However, this industry also employs electricians, plumbers, and forklift operators, which are all licensed occupations.

National Feedlot Accreditation Scheme

The National Feedlot Accreditation Scheme (NFAS) is an independently audited quality assurance scheme. Initiated by ALFA and is managed by an industry committee, the Feedlot Industry Accreditation Committee (FLIAC), participation in the NFAS is voluntary.

Australian Pork Industry Quality Assurance program (APIQ®)

APIQ® is the pig industry on-farm quality assurance program, which includes standards and performance indicators for management, food safety, animal welfare, biosecurity, traceability, environment and transport. Producers are audited annually by a third-party certifying body and participation is voluntary. Over 90% of all sows in production are APIQ® certified. Participation in APIQ® is voluntary.

Challenges and Opportunities in the Sector

Structured training is becoming increasingly important as companies seek to maintain the viability and competitiveness of all sectors of the industry in both domestic and international markets. Ongoing training is a critical component of addressing customer demands and expectations.

The industry is responding to:

- expectations from consumers, retailers and governments of high environmental and ethical standards, including food safety and animal welfare
- the competitiveness and ever-changing nature of international markets

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[30] *Export Control (Meat and Meat Products) Orders 2005.*

- the need to continue to innovate in order to remain competitive and ensure the viability of the industry into the future

- the need to attract, develop and retain a productive workforce

- the need to entice a new generation into the industry and to ensure succession planning is in place for the current workforce

- the need to ensure that learning and education opportunities exist for those already in the industry

- the challenges presented by climate variability and other environmental factors

- marketing and promotion requirements as markets diversify and more meal options become available

- whole-of-supply chain accountability in areas such as animal welfare and traceability

- the impact of social conscience and values, price and health considerations on meal choices

- meeting ever increasing regulatory requirements (including export licensing, food safety, quality assurance, animal welfare, environment, work health and safety, and workers' compensation)

- the continuing consolidation of large-scale, factory-based smallgoods production

- customer demands for higher standards of game meat processing

- increasing demand for post-trade training, particularly in the development of business skills in the meat retailing sub-sector and cross-trade skills for maintenance personnel

- the development of leading-edge boutique businesses operating across meat sectors

- enterprise capability in WHS compliance management for those companies that are self-insured

- the outcomes of the current national review of post-mortem inspection, likely resulting in changes to the Schedules of the Australian Standard, requiring some industry re-training.

Market and Trade Components

Demand and Trade of Meat and Meat Products

Demand for meat and meat products is largely dependent on the demand in the export market. Approximately 70% of the red meat processed in Australia is exported. This export demand is a result of:

- the state of the international economy

- the exchange rate

- livestock numbers in our major markets

- increasingly, the benefits derived from free trade agreements.

The supply of livestock in Australia to meet this demand is a result of:

- competition from live exporters

- drought impacting on numbers

- industry cycles in rebuilding of herds and flocks

- producers moving out of livestock and into cropping.

While the industry is a relatively small player in global production terms, it does produce around 3% of the world's beef, 8% of the world's sheep meat and 0.5% of global goat meat production. It is on the global export stage that the Australian industry makes a significant contribution to the world's need for high-quality protein. In 2015, by value, Australia was the world's largest exporter of beef and goat meat and the second largest exporter of sheepmeat.[31] By numbers, Australia was the world's largest exporter of livestock.[32]

Likewise, the industry makes a vital contribution to Australia's overall trade performance, generating $7 billion in export earnings in 2015–2016, placing the industry in the top seven Australian export industries.[33]

Globally, real per capita incomes will increase by 60% to 2030. Red meat consumption and per capita income are closely related; this translates to an increase in red meat demand of 25% over that period, as well as an increase in demand from markets specifically seeking high-quality red meat and livestock products. These forecasts present an enormous opportunity for Australia's red meat and livestock industry for geographical proximity to key markets and as a recognised supplier of safe, nutritious and ethically-produced products.

A productivity challenge continues to face the Australian meat processing industry, both on- and off-farm. Off-farm costs are consistently higher than all of Australia's major competitors, while on-farm productivity performance is now below that of productivity improvements being secured by major competitors. When combined with the forecast of declining real prices for livestock, the onus on production sectors to exhaust existing pathways to productivity and find new pathways is an ongoing challenge for the industry.

The need to identify and implement supply chain improvements and efficiencies is consistently raised, often under the umbrella of consolidation. For example, the Rural and Regional Affairs and Transport Committee report, *Effect of market consolidation on the red meat processing sector*, drew attention to areas such as industry understanding of price grids and their interpretation; the need for changes to the way existing cattle sale prices are collected and published; the need for a high priority to be given to the adoption of technology to enable objective carcase grading; a

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[31] MLA, 2017, *State of the industry report: The Australian red meat and livestock industry*.

[32] RMAC, 2015, *Meat industry strategic plan – MISP 2020*.

[33] Department of Foreign Affairs and Trade, 2017, *Australia's trade at a glance*. <http://dfat.gov.au/trade/resources/trade-at-a-glance/pages/top-goods-services.aspx>.

uniform dispute resolution process for over-the-hooks sales; and communication and education around the current carcase grading system.[34] An initial response, supported by the Meat Industry Reference Committee, is to develop an accredited approach to market reporting at the point of sale.

Over many years, the industry has invested in the technologies and systems that have built a reputation as a high-quality, safe, ethical and sustainable producer of red meat and livestock. The industry's work and commitment to maintain and improve integrity systems underpins Australia's international reputation. Continuing to invest and innovate in this area is essential. The industry requires concerted focus and robust systems to support greater integration through the supply chain, especially with respect to increasing the connectivity and responsiveness of the industry to its customers, and to the broader community.

Recent focus has been on the strengthening and standardisation of producer feedback information through initiatives such as Australian Pork Ltd's Health 4 Wealth project, 'Enhancing supply chain profitability through reporting and utilisation of peri-mortem information by livestock producers'; Meat and Livestock Australia's roll-out of Livestock Data Link (LDL), and the National Sheep Health Monitoring Program. There is emerging need for a standardised national training solution for collecting and monitoring animal health data.

There is growing industry interest in monitoring product quality, handling and shelf life through to the point of consumer purchase in overseas sales. Capability to identify and address fluctuations in cold chain management is increasingly important.

The outlook to 2030 points to ongoing nominal growth in the value of the Australian red meat and livestock industry. However, all other elements being equal, the prolonged period of herd rebuilding required to offset the record cattle slaughter levels of 2014 will limit the industry's ability to capitalise on the increase in global demand for red meat products.

Digital technologies and market shifts

The Meat Industry Strategic Plan (MISP) 2020 states that a key to the industry's success will be the ability to optimise the systems, technologies and practices within immediate control. Of increasing importance is the ability to ensure these elements are actively used to align industry practices with consumer and community expectations.

One key requirement identified in MISP 2020 is the need for a whole-of-supply-chain electronic data-exchange capability, which can support industry specification, quality and integrity systems and provide open and transparent access for all relevant parties.

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[34] Rural and Regional Affairs and Transport Committee, September 2017, *Effect of market consolidation on the red meat processing sector.*

Through its primary research development corporations (RDCs), the Australian Meat Processor Corporation (AMPC) and Meat and Livestock Australia (MLA), the industry continues to invest in the development of new technologies.[35]

AMPC's Processing Technologies program focuses on developing novel processing technologies; enhancing the adoption and commercialisation of technology throughout the industry; improving materials handling to reduce waste; and developing innovative meat products and possibilities for product differentiation.

AMPC ensures that there is a clear link between its research and development programs and implementation through its extension programs, and this includes monitoring the need to make changes to the training package. This means that the need for new/updated training products is identified as part of the implementation process.

Over the past three years, MLA has worked with industry, research institutes and technology providers to develop the application of DEXA (Dual energy X-ray absorptiometry), an objective measurement tool that measures meat, fat and bone on a carcase (carcase composition). As a result of recent reports, implementation of this technology is now being fast-tracked. This information can help the entire red meat value chain make more informed business decisions to improve on-farm and processing efficiency and deliver a product preferred by customers. The pig industry has developed, and is trialling, similar technology specific to pig processing through PorkScan. The Meat Industry Reference Committee is closely monitoring this development and its potential impact on the training system.

Future markets

MISP 2020 identifies the current most valuable export markets as:

USA	$4.0 billion
Japan	$2.0 billion
China	$1.1 billion
South Korea	$1.1 billion
Taiwan	$0.9 billion.

Under MISP 2020, marketing and promotion in export markets will focus on developing markets and the industry's underpinning quality and safety systems. It is expected that commercial parties will undertake the majority of effort in developed export markets, underpinned by industry quality and safety systems.

Environmental

The industry contributes extensively to Australia's social and environmental objectives. As caretakers of around half the continent's landscape, Australian red meat and livestock producers have a vested interest in continually improving sustainable farming practices. MISP 2020 states that greenhouse gas emissions' intensity has been reduced by 14% over the last 30 years ,while red meat production levels have increased by more than 70% over that period. In addition, the industry has achieved a 42% reduction in emissions associated with vegetation protection and tree planting, and a 65% reduction in water use.

Under the title of 'stewardship of environmental resources', the stated objectives in MISP 2020 are:

- minimising industry impact on the environment

- sustainable management of the natural resource base

- adapting to climate variability.

Current AMPC research and development in this area includes projects seeking to reduce energy consumption and greenhouse gas emissions; improving industry awareness, capabilities and attitudes to adapt to climate variability; improvement of wastewater management and capturing value from waste products; exploring options to improve industry infrastructure; and maintaining efficient food safety and product integrity controls.

Free trade

Australia has signed free trade agreements (FTAs) with the USA, ASEAN, Korea, China, Peru and Japan. The consensus across the Australian meat processing industry is that the recently signed FTAs bring strong benefits to the industry, predominantly in the form of tariff reductions, which increase our international competitiveness. It is estimated that the benefits of Australia's the three North Asian FTAs with Korea (KAFTA), Japan (JAEPA) and China (ChAFTA) will result in a combined $20 billion in extra value for the Australian industry over the next 20 years. January 2018 saw another cycle of annual tariff and quota relaxations on red meat exports to customer countries such as Korea, China and the US. However, the positive impact of these has been tempered against stock shortages and high cattle prices relative to other international suppliers.[36]

MISP 2020 states that as economic barriers fall, there will likely be an increase in technical barriers for both meat and live animals – currently costing $1.3 billion annually – that will require a greater proportion of market access effort over the life of the plan. Border protection measures, including tariffs and quotas, are the most obvious. However, non-tariff barriers are also major issues, such

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[36] Beef Central, 17 January 2018.

as unfair competition in the form of subsidies, technical imposts, and exports from countries that subsidise their domestic industries.

Future investment

Economic modelling has identified the key investment pillars that stand to yield the greatest value in MISP 2020. The industry's ability to support these investments with appropriate resources, and monitor and communicate their value, will ultimately ensure the economic potential of the plan is fully realised.

MISP 2020 recommended a range of strategic investment priorities specifically related to red meat processing, including:

- increased investment in improving the flow of information and traceability that underpins business decisions through the supply chain

- increased investment in improving livestock and product assurance and specification compliance

- reduced investment in marketing and promotion in developed markets.

C. EMPLOYMENT

Employment Outlook

According to the 2016 Census, the Australian meat processing industry employed 48,060 people across four industry sub-sectors in 2016. About 76% of these were employed full-time. Meat processing was the largest industry sub-sector by employment, representing just under two thirds of the industry. The industry is concentrated in Queensland, New South Wales and Victoria, providing over 80% of the industry employment.[37]

Meat processing employment increased 18% over the ten-year period, from 24,449 employees in 2006 to 28,870 in 2016.

Employment in poultry processing also increased, yet at a lower rate (12%).

Figure 1. Employment trends 2006-2016

For cured meat and smallgoods manufacturing, employment counts show a 19% decline, from 6,304 employees in 2006 to 5,096 in 2016.

The Department of Employment projects[38] that total employment in the meat and meat product industry sub-sector will contract by -0.1 percent over the five years to November 2020 (Table 3).

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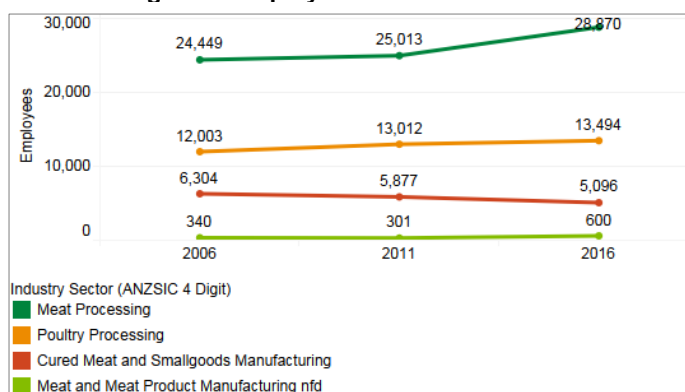
[37] All employment data in this report is sourced from the ABS Census Datasets.

[38] Department of Employment, May 2016, *Industry employment projections, 2016 report.* *<http://lmip.gov.au/default.aspx?LMIP/EmploymentProjections>.*

IRC Skills Forecast and Proposed Schedule of Work 2018–2021

Table 3. Department of Employment Industry Projections – five years to November 2020.[39]

Industry Sector	Employment Level	Employment Projections		
	Nov. 2015	**Nov. 2020**	**Growth**	
	('000)	**('000)**	**('000)**	**(%)**
Food manufacturing				
Meat and meat product manufacturing	53.6	53.6	0.0	-0.1
Total	**53.6**	**53.6**	**0.0**	**-0.1**

Description of Workforce Supply

Meat and meat product manufacturing is a significant industry sector of the food manufacturing workforce and is a major employer of people in regional areas.

The meat processing sector has had a steady reliance on migration, including 457 visas, as an important source of skilled (and unskilled) workers for the industry, particularly in regional areas with seasonal labour requirements.

Identifiable occupations in the food product manufacturing sector that relate to meat and meat processing sub-sector are shown in Table 4 below.

Table 4. Occupations and their numbers in the meat and meat processing sector.[40]

| Occupations	Nov. 2015 ('000)	Projected Nov. 2020 ('000)	Growth Nov. 2020 ('000)	Percentage growth (%)
Meat boners and slicers, and slaughterers	11.4	10.7	-0.8	-6.8
Meat, poultry and seafood process workers	15.8	15.5	-0.4	-2.4
Butchers and smallgoods makers	21.3	21.4	0.1	0.5

The occupations listed in Table 4 account for nearly 90% of employment in the meat and meat product manufacturing sub-sector. The remaining workforce occupies roles includin factory process workers, such as meat inspectors, plant managers, packers, QA managers, and product quality controllers; and more general roles, such as specialist managers (i.e. business administration managers, marketing and sales managers, production managers, supply and distribution managers), clerical and administrative workers, and sales roles.

Learning for most technical skills and specific knowledge required in the industry sectors occurs mainly on-the-job, through workforce development activities, including accredited training, provided by employers.

Age distribution of the workforce differs between the industry sub-sectors. The workforce in the meat processing sector is younger when compared to poultry processing and cured meat and smallgoods manufacturing. In 2016, this sub-sector employed a higher proportion of people (about a third of all its workforce) in the age groups 10–19 years and 20–29 years and a slightly lower proportion (less than a quarter) in the age groups over 50 years.

The proportion of workforce aged 50 to 60 years and over 60 years increased by 3% across all industry sub-sectors (refer to Attachment 2).

Figure 2. Industry employment by age level, 2016.[41]
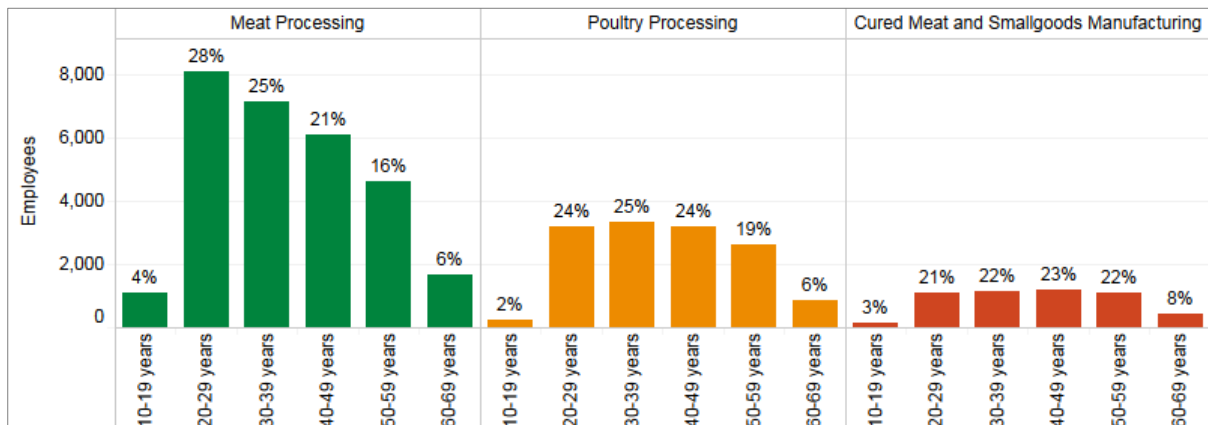
[41] Department of Employment, May 2016, *Industry employment projections, 2016 report.*
<http://lmip.gov.au/default.aspx?LMIP/EmploymentProjections>.

Men constituted more than 60% of all employees in the meat processing industry in 2016.

A higher proportion of men (75%) was employed in the meat processing sub-sector.

Over 2006–2016, the proportion of women increased by 2% in meat processing and decreased by 4% in poultry processing.

Figure 3. Industry employment by gender, 2016.
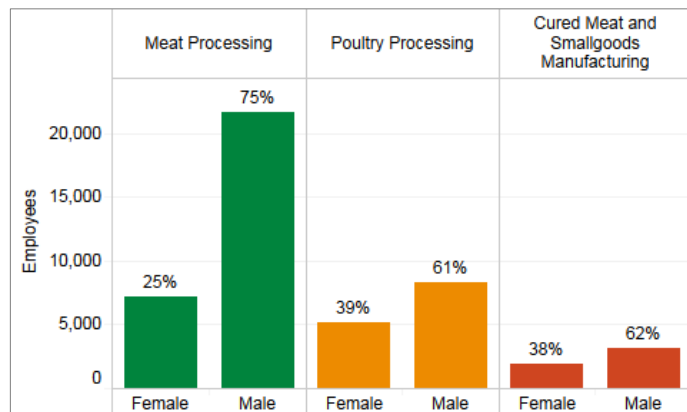
Although the ABS census data quoted above indicates total employment of 48,060 in 2016, the importance of the flow-on effect on employment of the meat processing industry, particularly in regional areas, must also be acknowledged.

AMPC estimates that nationally the industry generates 134,000 jobs, equivalent to 1.4% of full-time equivalent (FTE) employment, when flow-on effects are considered.[42]

Current Jobs and Forecast Demand to 2020

The main occupations of employment in the meat processing industry are meat poultry process workers (including seafood process), packers, meat boners, slicers, and slaughterers. Other occupations include butchers, smallgoods makers, livestock farm workers, forklift drivers, commercial cleaners, and production managers.

The proportion of people working as packers and forklift drivers increased by 1% from 2006 to 2016. Occupations that increased in number but decreased in proportion of all employees in the meat processing industry include meat boners, slicers and slaughters, butcher and smallgoods makers and commercial cleaners.

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[42] AMPC, 2015, *Evaluating the socio-economic benefit of the red meat processing industry in regional Australia.*

Figure 4. Change in occupations, 2006–2016.[43]

Occupation (ANZSCO 4 Digit)	% of Total 2006	% of Total 2016
Meat Poultry and Seafood Process Workers	25%	25%
Packers	14%	15%
Meat Boners and Slicers and Slaughterers	16%	14%
Butchers and Smallgoods Makers	4%	3%
Livestock Farm Workers	3%	3%
Forklift Drivers	2%	3%
Commercial Cleaners	3%	2%
Production Managers	2%	2%
Storepersons	2%	2%
Metal Fitters and Machinists	2%	2%
Other Specialist Managers	1%	1%
Livestock Farmers	1%	1%
Truck Drivers	1%	1%
Electricians	1%	1%

Labourers and general workers

- Numbers of employees expected to remain much the same.

- Customer requirements will place a greater focus on formal qualifications for stock handlers.

- Increased pressure for the provision of nationally endorsed training for itinerant and temporary workers.

- Expected increase in warehousing and logistics skills and knowledge for loadout; greater requirement for technological skills.

- Demand for cross-trade skilling for trades assistants in the maintenance areas.

- Greater demand for nationally endorsed training in handling and treating animal skins, including new techniques.

- Consistent demand for task-related training (not necessarily nationally endorsed) in feedlots.

Technical, trade and skilled worker positions

- Overall numbers of employees expected to remain much the same.

- Customer requirements will place a greater focus on formal qualifications for stock slaughterers.

- Expected demand for the new Certificate III in Meat Processing (Quality Assurance).

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[43] Department of Employment, May 2016, *Industry employment projections, 2016 report.*
<http://lmip.gov.au/default.aspx?LMIP/EmploymentProjections>.

- Transition and RPL options for meat inspectors will be required as the revised qualifications are adopted.
- Greater diversification of skills, especially in boning and slicing, will be required as new technologies are introduced.
- Engineering tradespersons will require cross-trade maintenance skills, especially when working with new technology.
- Specialised skills in the handling and treating of hides and skins.
- Increased emphasis on formal training in the management and maintenance of ammonia refrigeration.
- Increased requirements for food service qualifications with the increase in independent boning rooms.
- Greater demand for Certificate III in Meat Processing (Smallgoods - General) as national consolidation of enterprises is completed.
- Quality assurance training to meet NFAS accreditation requirements in feedlots.
- National consistency in the collection of animal health data.

Senior technical and supervisor positions

- Greater demand for skills and knowledge related to logistics and warehousing.
- With the increase in independent boning rooms and greater emphasis on wholesale value-adding, there will be increased demand for food service qualifications at Certificate III level.
- Increased shift of responsibility and accountability for food safety to plant-based QA personnel, resulting in training from the *AMP Australian Meat Processing Training Package* continuing to be important, particularly in the areas of meat microbiology, food safety, data interrogation, and quality systems management skills.
- Meat processors will continue to be active in seeking solutions in energy efficiency and wastewater usage.
- Skills to incorporate and manage TACCP and VACCP assessments into QA programs.
- Skills to monitor outsourced pest control management systems within the context of a QA program.
- Greater knowledge of and capacity to assess emerging packaging technologies.
- Ongoing demand for task-related training (not necessarily nationally endorsed) in specialised areas in feedlots.
- Increased focus on horse riding and handling safety in feedlots and lairages, but shift away from nationally endorsed training.
- Need for a consistent approach to the preparation of market reports at point of sale, particularly in saleyards.
- Capability to identify and address fluctuations in cold chain control into export markets.

Management

- Increased demand for *AMP Australian Meat Processing Training Package* training in project management, particularly in relation to implementation of new technologies.
- Continued demand for formal qualifications such as the Diploma and Advanced Diploma of Meat Processing.
- Increased demand for financial and project management training in feedlots.
- Increased demand for supervisory and leadership skills in poultry processing.

D. SKILLS OUTLOOK

With the continuing growth of technology solutions and strong focus of research and development activity in this area, the meat processing industry needs to prepare for changing skills requirements at all levels of operation. In addition, international emphasis on food safety and traceability place greater demand on individual businesses to identify and manage associated risks.

This section identifies the priority skills needs in the meat processing industry over the next four years (2018–2021) through an analysis of new and projected demands placed upon the industry. The section focuses on the skill needs that can benefit from improvement or development of national skill standards.

Training Activity

Number of training providers

Currently, there are 155 registered training organisations (RTOs) with *AMP Training Package* training components on scope, servicing the Australian meat processing industry sector.[44] However, of these 155 RTOs, only 44 have direct scope and can issue AMP qualifications.
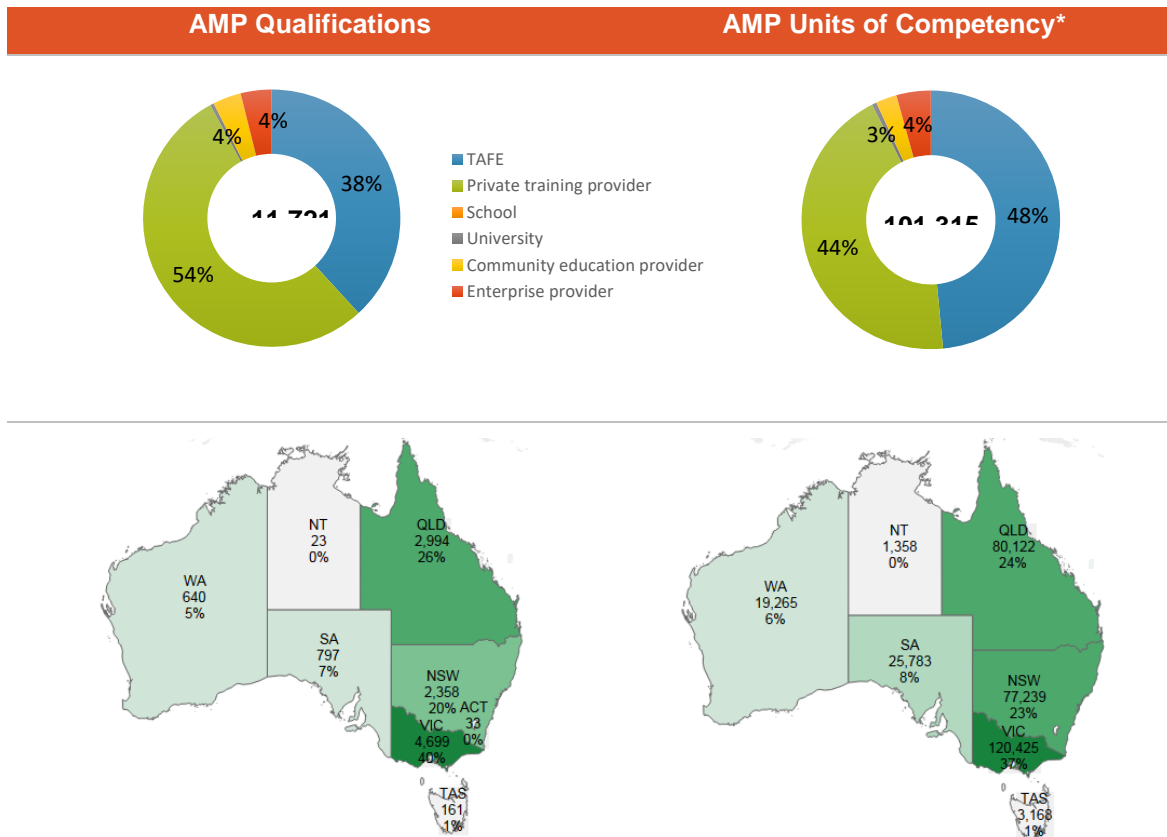
Number of student enrolments

In 2016, there were 11,721 student enrolments in *AMP Training Package* qualifications and 101,315 enrolments in units of competency. Most students were serviced by private training providers and TAFE organisations in Victoria, Queensland and New South Wales.[45]

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[44] training.gov.au

[45] All training data in this report is sourced from VOCSTATS.

Figure 5. Student enrolments, 2016.

AMP Qualifications	AMP Units of Competency*

Legend:
- TAFE
- Private training provider
- School
- University
- Community education provider
- Enterprise provider

AMP Qualifications donut chart: 38% TAFE, 54% Private training provider, 4% Community education provider, 4% Enterprise provider. Centre: 11,721

AMP Units of Competency donut chart: 48% TAFE, 44% Private training provider, 3% University, 4% Enterprise provider. Centre: 101,315

AMP Qualifications map:
- NT 23 0%
- QLD 2,994 26%
- WA 640 5%
- SA 797 7%
- NSW 2,358 20%
- ACT 33 0%
- VIC 4,699 40%
- TAS 161 1%

AMP Units of Competency map:
- NT 1,358 0%
- QLD 80,122 24%
- WA 19,265 6%
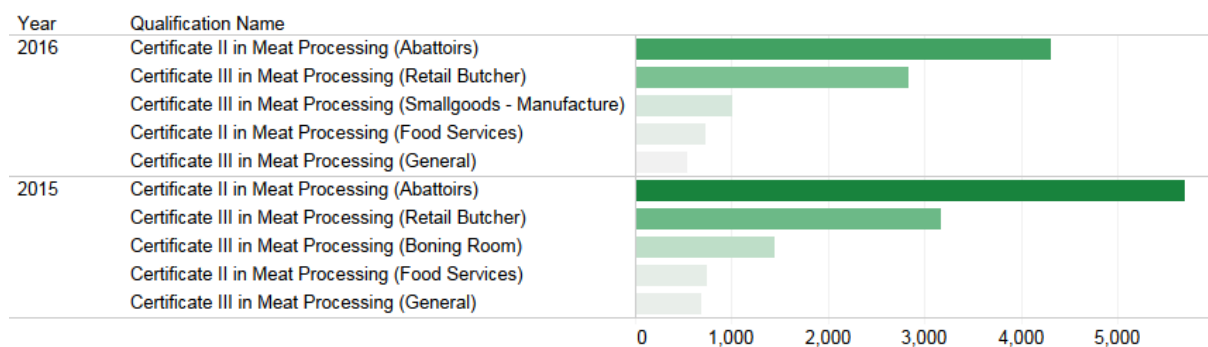- SA 25,783 8%
- NSW 77,239 23%
- VIC 120,425 37%
- TAS 3,168 1%

* Units of competency prefixed AMP and MTM.

Top five most-used qualifications
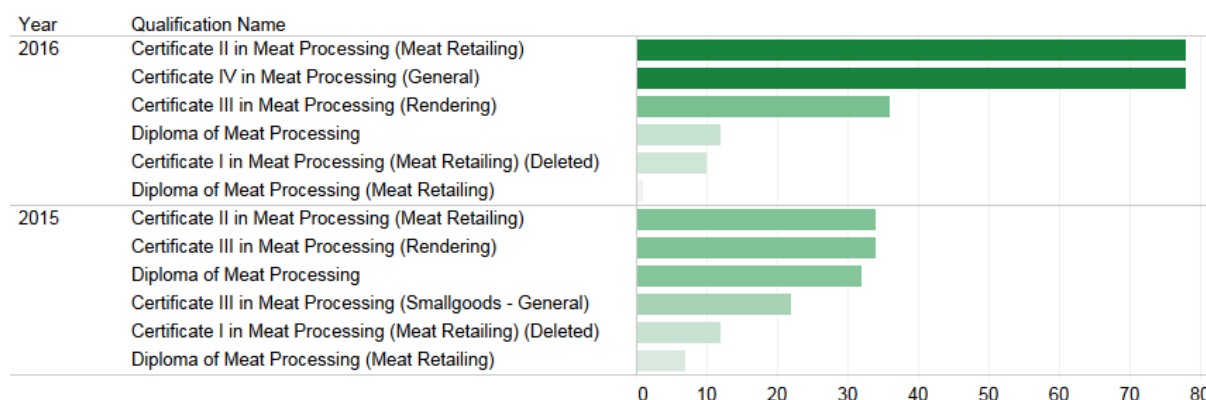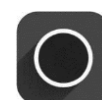
Figure 6. Top five most-used qualifications 2015–2016. [46]

Year	Qualification Name
2016	Certificate II in Meat Processing (Abattoirs)
	Certificate III in Meat Processing (Retail Butcher)
	Certificate III in Meat Processing (Smallgoods - Manufacture)
	Certificate II in Meat Processing (Food Services)
	Certificate III in Meat Processing (General)
2015	Certificate II in Meat Processing (Abattoirs)
	Certificate III in Meat Processing (Retail Butcher)
	Certificate III in Meat Processing (Boning Room)
	Certificate II in Meat Processing (Food Services)
	Certificate III in Meat Processing (General)

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[46] Ibid.

IRC Skills Forecast and Proposed Schedule of Work 2018–2021

Least-used qualifications

Figure 7. Least-used qualifications 2015–2016. [47]

Qualifications with no enrolments

Year	Qualification Name
2016	Certificate II in Meat Processing (Smallgoods)
	Certificate III in Meat Processing (Packing Operations)
	Certificate III in Meat Processing (Quality Assurance)
	Certificate III in Meat Processing (Livestock Handling)
	Advanced Diploma of Meat Processing
	Graduate Certificate in Agribusiness
	Graduate Diploma of Agribusiness

Of these qualifications, the three Certificate III qualifications are new and only just being implemented in each state. The Certificate II in Meat Processing (Smallgoods) is also embedded into the Certificate III qualifications for the smallgoods industry, and the recent trend in the industry has been to enrol straight into Certificate III. The industry self-funds the Advanced Diploma of Meat Processing, which runs as a national program approximately every two years. The Graduate Certificate has run once as a national program and is expected to be offered again in 2019.

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[47] All training data in this report is sourced from VOCSTATS.

Qualification enrolments

Total VET enrolments in AMP qualifications dropped by 22% (or 3,303 enrolments) to 11,721 between 2014 and 2016, due to a reduction of training activity in Victoria and Queensland. These figures include enrolments from all types of providers and combine government-funded, apprentices, VET in Schools and fee-for-service training from private and other training providers.

Figure 8. Trends in enrolments for *AMP Training Package* qualifications, 2010–2016

Apprenticeships and traineeships for trade and non-trade occupations in the meat processing industry have declined since 2010. Records show a fall of 31% in commencements from a top of 6,749 in 2010 to 4,627 in 2016.

Government-funded enrolments for AMP qualifications fluctuated between 2010 and 2014 and declined after that, reaching their lowest level in 2016 (reflective of stock shortages in the industry). From 2014 to 2016, there was a 25% decline in enrolments or a reduction of 3,120 enrolments.

VET in Schools activity regarding AMP qualifications delivered to school students has been traditionally low.
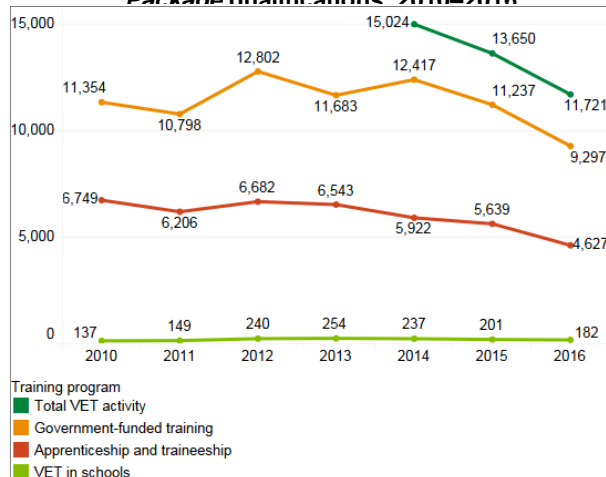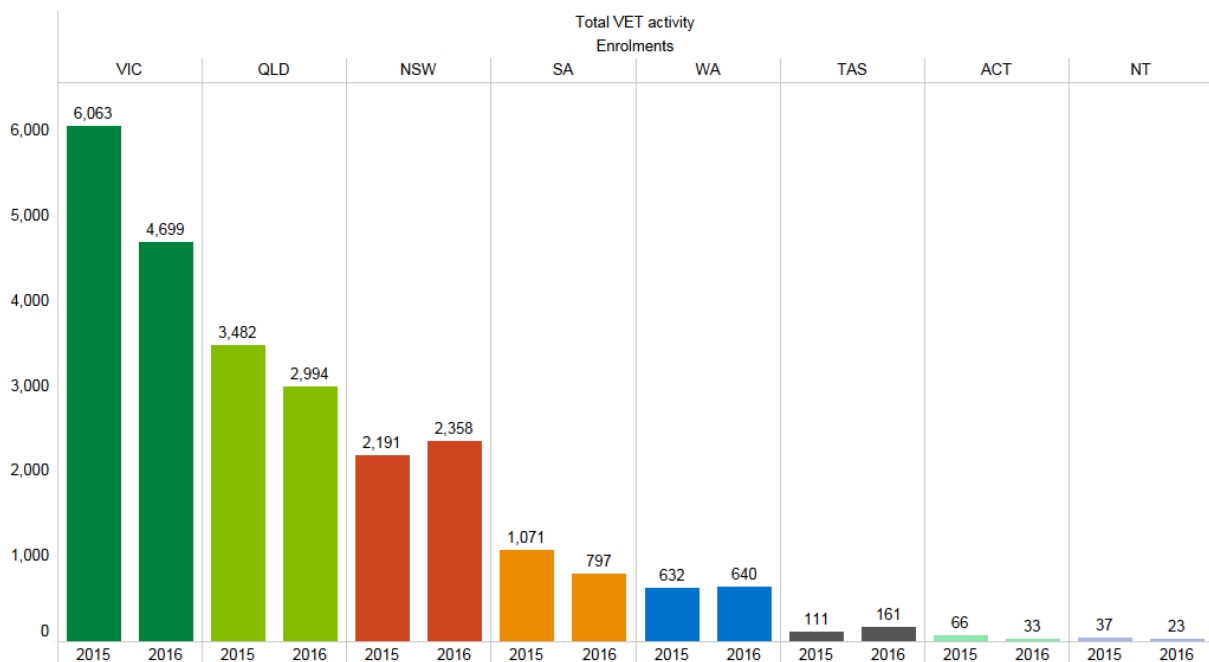
Figure 9. State-level comparison for total VET enrolments in *AMP Training Package* qualifications, 2015–2016.[*]
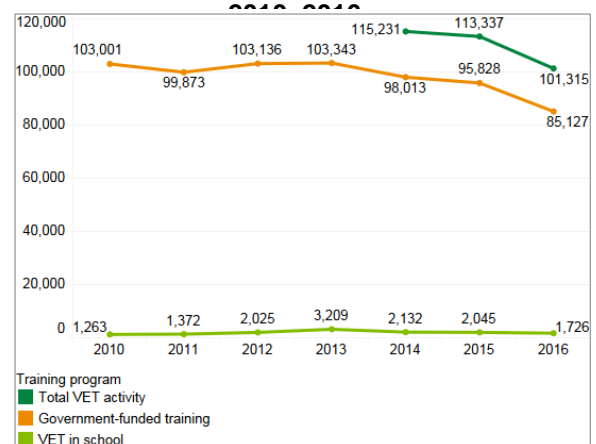

[*] State/territory of training organisation. Uncategorised data (reported as 'Not known') for state/territories is not included.

Subject enrolments

Total VET enrolments for AMP units of competency declined by 12% (or 13,916 enrolments) from 115,231 in 2014 to a low of 101,315 in 2016.

Government-funded enrolments dropped well under their relatively stable levels of approximately 103,000, which were recorded between 2010 and 2013. They fell by 20% (or 20,216 enrolments) from 103,343 in 2013 to 85,127 in 2016.

Figure 10. Trends in enrolments for *AMP Training Package* units of competency, 2010–2016

VET in Schools activity regarding AMP units of competency delivered to school students peaked at 3,209 enrolments in 2013 and then fell by 46% (or 1,483 enrolments) to 1,726 in 2016.

Figure 11. State-level comparison for total VET enrolments in *AMP Training Package* units of competency, 2015–2016.[*]
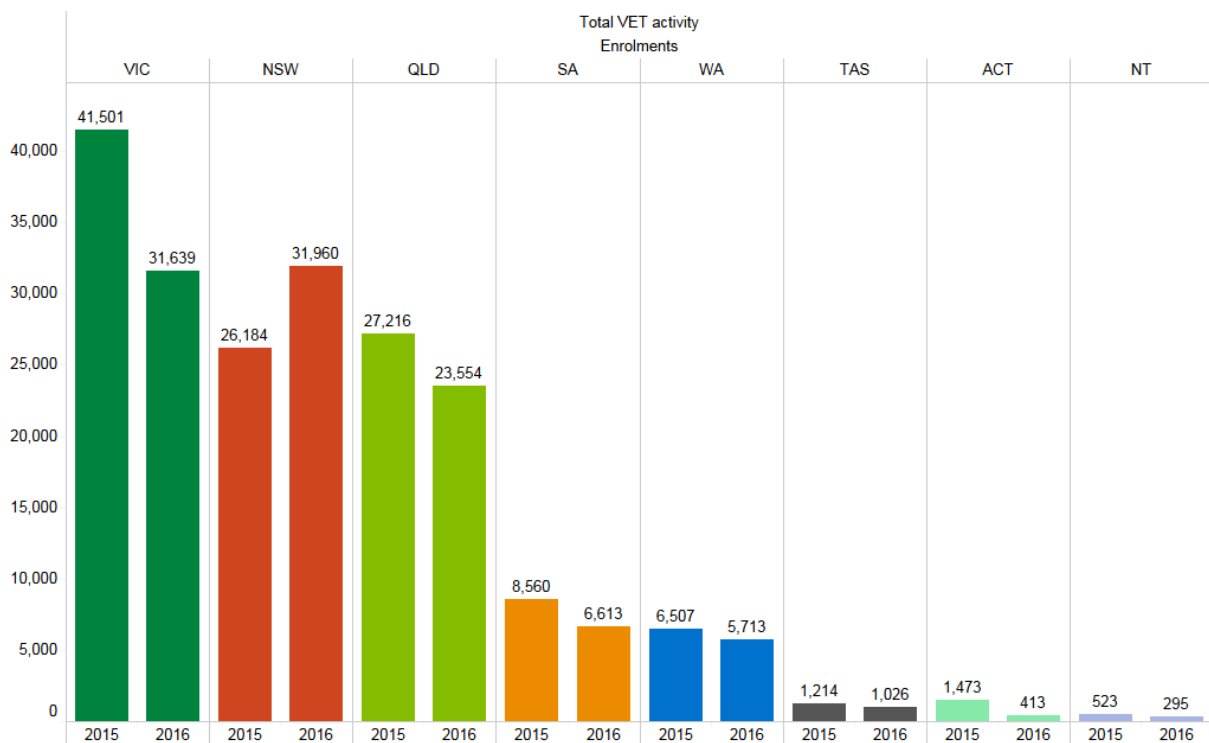
[*] State/territory of training organisation. Uncategorised data (reported as 'Not known') for state/territories is not included.

Student profile

Total student cohort enrolled in AMP qualifications was represented by 79% male and 21% female in 2016. The highest proportion of students were in the age groups 15 to 19 and 20 to 24 years. There was a small representation of Indigenous students (515). Over a third of students lived in major cities and below half in inner regional Australia. A small proportion of students resided overseas.

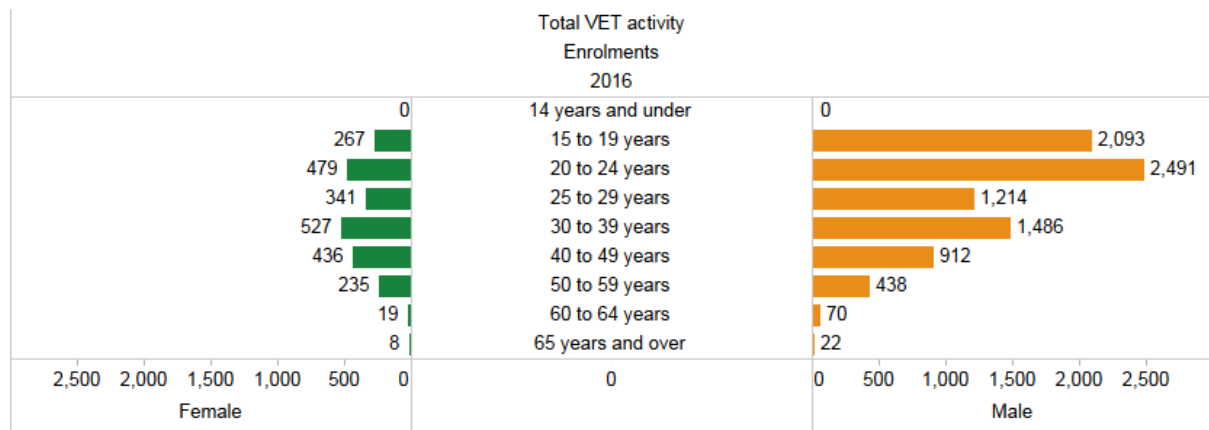**Figure 12. Student personal characteristics: GENDER AND AGE.** [*]

Total VET activity
Enrolments
2016

Female	Age	Male
0	14 years and under	0
267	15 to 19 years	2,093
479	20 to 24 years	2,491
341	25 to 29 years	1,214
527	30 to 39 years	1,486
436	40 to 49 years	912
235	50 to 59 years	438
19	60 to 64 years	70
8	65 years and over	22

Figure 13. Student personal characteristics: INDIGENOUS STATUS. [*]

Total VET activity
Enrolments
2016

Female	Age	Male
0	14 years and under	0
21	15 to 19 years	151
18	20 to 24 years	146
13	25 to 29 years	56
11	30 to 39 years	58
11	40 to 49 years	24
0	50 to 59 years	4
0	60 to 64 years	2
0	65 years and over	0
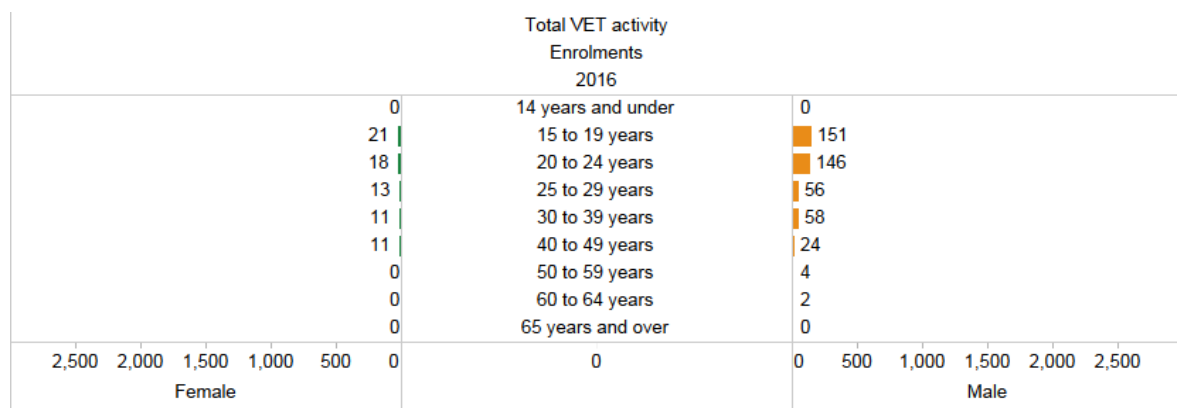
Figure 14. Student personal characteristics: REMOTENESS. [*]

Total VET activity
2016

| Inner regional 41.57% | Major cities 37.01% | Outer regional 18.11% |
| | | Remote 2.11% |
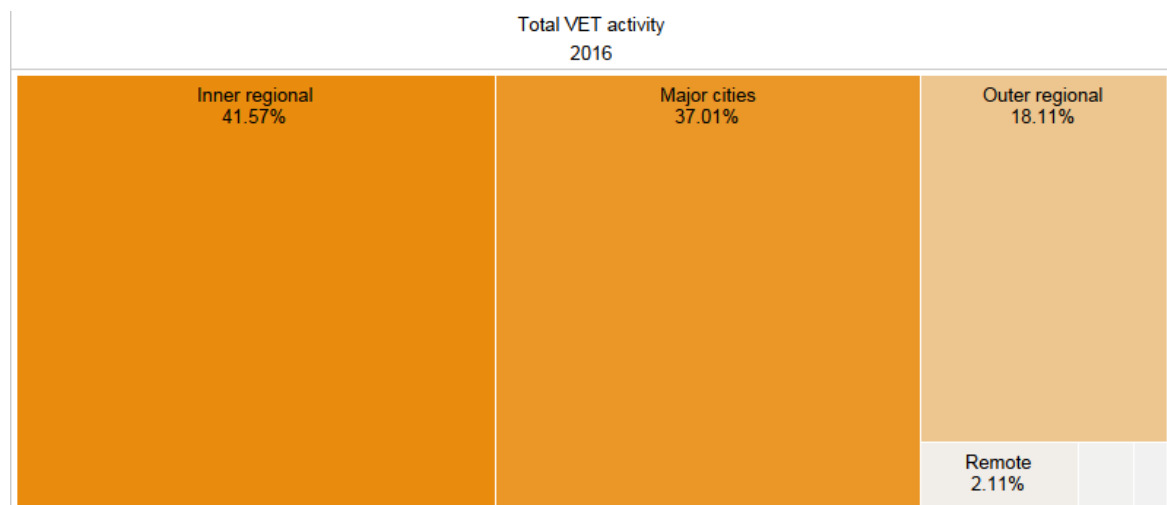
[*] Uncategorised data (reported as 'Not known') is not included.

Industry Priority Skills

The 2018–2021 outlook for skills needs and priorities in the meat processing industry is shaped by a range of development trends and factors, as outlined in the table below.

Priority Skill 1	Skill Description
Management skills – review of the Diploma and Advance Diploma qualifications	This project will seek to review and update the Diploma and Advanced Diploma in Meat Processing qualifications. Twenty-eight current units of competency will be reviewed for suitability, and up to ten additional units either developed or imported to meet the expanded scope requirements.
	Relevant Occupations • meat processing manager • poultry processing manager • feedlot manager • maintenance manager.
	Drivers There are a number of industry drivers that have necessitated this review, as follows: • The Diploma of Meat Processing (Meat Retailing) has had very few graduates since it was introduced in 2000. It is proposed that this qualification should be removed from the *AMP Australian Meat Processing Training Package.* However, as part of this removal, the industry needs to ensure that the future career development needs of meat retailers are also addressed in the Diploma of Meat Processing. • Increased vertical integration means that staff in various parts of an enterprise will need mobility to move from sector to sector and/or understand all aspects of operation. • The inclusion of poultry processors and feedlots sub-sectors were not considered when these qualifications were developed. Both sub-sectors, under the auspices of the Meat Industry Standing Committee, are now moving towards the inclusion of higher-level qualifications as part of their career planning. The scope and content of these qualifications need to be reviewed to ensure that the management development needs of each of these sub-sectors are addressed. In particular, both sub-sectors have indicated that project and financial management are high priorities.

- The speed of technological development, automation and use of Big Data are rapidly impacting the management development requirements of the industry. It is proposed that the new units being developed as part of the cross-industry projects be considered for inclusion in the Diploma and Advanced Diploma of Meat Processing.

As some of the current imported units have been updated in their own training packages, they have become less suitable for use in the meat industry. For example, *SIRXMGT005A Set strategic plans* now refers to 'Store' throughout, which is no longer relevant to meat processing. It is planned that all imported units be reviewed for suitability and either (a) negotiations be undertaken with the relevant SSO to adjust the wording, or (b) new, more suitable units be developed.

Training Package Solutions

- Broaden the scope of the Diploma and Advanced Diploma in Meat Processing.
- Remove the Diploma in Meat Processing (Meat Retailing).

Impact

- **Industry:** This project will ensure that the industry sub-sectors of meat retailing, poultry processing and feedlots have access to suitable higher-level training pathways; emerging skills requirements will also be addressed.
- **RTOs**: RTOs will need to add new units to their scope of registration.

Regulators: No impact.

Risks of Not Proceeding

Higher-level qualifications' application will be limited in how they can be used to respond to emerging industry requirements for new skills, new technologies and movement across sub-sectors.

Priority Skill 2	Skill Description
Undertake workplace incident investigations	This project is for the development of a new unit of competency for the planning, implementation and reporting of an investigation into a workplace incident**.**

Relevant Occupations

- senior supervisor
- quality assurance manager
- work health and safety manager
- processing plant engineer.

Drivers

Under current WHS legislation, a Person Conducting a Business or Undertaking (PCBU) must ensure, so far as is reasonably practicable, that workers are safe from injury and risks while at work. This requires safe systems of work to be in place. Should a workplace incident or injury occur, the PCBU must investigate it to find the cause and to avoid it happening in the future. The function of an investigation is to establish all the factors involved in the incident and determine appropriate action/s to prevent a recurrence.

While the description above applies to work health and safety incidents, investigation processes can also apply to other incidents in a meat processing plant, such as animal welfare or environmental incidents. When there has been a port-of-entry rejection, QA teams in plants are required to undertake an investigation to establish a cause and put in place preventative and corrective actions.

In the past, investigations have been the responsibility of external authorities or third parties, and this remains the case where there are serious incidents, but the modern trend is to move this responsibility to the enterprise and to monitor effectiveness of documented processes and compliance through auditing processes.

Training Package Solutions

The development of one new unit of competency to be included in the Certificate IV in Meat Processing (Quality Assurance) and Certificate IV in Meat Processing (General)

Impact

- **Industry:** Responsible individuals within industry enterprises will be better equipped to undertake incident investigations.
- **RTOs:** RTOs will need to add the unit to their scope of registration and to develop trainer capability.

Regulators: No direct impact, but there will be greater confidence in the veracity of workplace investigations at times of audit.

Risks of Not Proceeding

Enterprise capability to undertake an effective investigation will continue to be compromised.

Priority Skill 3	Skill Description
Operation and management of biogas facilities in a processing plant	This priority skill project will seek to develop two new units of competency related to the safe operation and management of biogas facilities in a processing plant.

Relevant Occupations

- waste water and biogas operator
- environment officer and supervisor.

Drivers

Biogas is the product of anaerobic biological breakdown of organic substances. Anaerobic ponds or lagoons (the terms are interchangeable) are a common treatment step of wastewater produced from the meat industry. The technology is simple and inexpensive to operate while significantly reducing the wastewater organic loading. The by-product, biogas, is both a valuable fuel and a greenhouse gas (contributing towards carbon emissions). Captured biogas can be used to fuel a boiler or for co-generation. The burning of the biogas also significantly reduces carbon emissions. Hence, the covering of the anaerobic ponds has recently become popular.

The collection and handling of biogas in covered anaerobic lagoons (CALs) from the bacterial degradation of meat processing wastewater is accompanied by a number of hazards, the most significant of which include:

- the formation of hydrogen sulphide gas (H_2S), which is toxic
- the flammability of biogas when mixed with air
- suffocation due to the exclusion of air from especially confined spaces.

As the capture of biogas becomes more common, company safety and regulatory responsibilities are increasing and there is a need for companies to manage their biogas risks.

Training Package Solutions

The development of two new accredited units of competency, one each for:

- Certificate III in Meat Processing (General)
- Diploma of Meat Processing.

Impact

- **Industry**: This project supports the adoption of new technologies and the management of risk at an enterprise level. Biogas capture is an emerging technology and is already widely used in sectors such as food processing and wastewater treatment. The skills gained by operators and managers at meat processing plants will be easily transferable to these other sectors.
- **RTOs:** Comprehensive resources for these processes have recently been released by the AMPC. RTOs will need to add these units to their scope of registration and build internal trainer capability.

Regulators: Regulators are looking for evidence of effective training and risk management.

Risks of Not Proceeding

Without access to suitable training, there are significant hazards related to the capturing of biogas. Risks of accident are also increased.

Priority Skill 4	Skill Description
Animal health data collection, evaluation and monitoring	This project will seek to develop a new unit of competency for the collection, monitoring and evaluation of animal health data.

Relevant Occupations

- meat inspector
- quality assurance officer.

Drivers

The monitoring and control of a range of diseases has commercial drivers for meat processors, including improving carcase yield and profitability; offal recovery; and condemnation rates. Prevalence of diseases and conditions can also affect the livestock-buying patterns of processors.

For producers, control of diseases and conditions enables the value of individual animals to increase, as the financial consequences of even low rates of infection can be significant. Producers are therefore keen to understand the incidence and management of diseases and conditions, as well as the productivity and fertility implications. Management of these conditions, as well as the timely and accurate flow of information, helps to establish and improve supply chain relationships.

Training Package Solutions

The creation of a new unit at Certificate IV level, for both the Meat Safety and Quality Assurance qualifications, will support the current national initiatives to establish nationally consistent identification, monitoring and evaluation of data relating to diseases and conditions.

Impact

- **Industry:** This project supports an industry-wide initiative already commenced under the federally-funded Health 4 Wealth project, 'Enhancing supply chain profitability through reporting and utilisation of peri-mortem information by livestock producers'.
- **RTOs:** Industry-led development of resources and pilot training for trainers has already commenced. RTOs will need to add this unit to their scope of registration.

Regulators: No impact.

Risks of Not Proceeding

The development of this unit of competency has been requested in association with a much broader industry project. From a foreign-market-access perspective, there is growing need for industry to gather Big Data to develop an active program to monitor for animal health diseases and conditions of concern and, where they are endemic, to control and/or eliminate them. If this training is not nationally endorsed, then controls over accuracy and consistency are diminished.

Priority Skill 5	Skill Description
Animal health data collection, evaluation and monitoring	This project will seek to develop a new unit of competency for the collection, monitoring and evaluation of animal health data.

Relevant Occupations

- meat inspector
- quality assurance officer.

Drivers

The monitoring and control of a range of diseases has commercial drivers for meat processors, including improving carcase yield and profitability; offal recovery; and condemnation rates. Prevalence of diseases and conditions can also affect the livestock-buying patterns of processors.

For producers, control of diseases and conditions enables the value of individual animals to increase, as the financial consequences of even low rates of infection can be significant. Producers are therefore keen to understand the incidence and management of diseases and conditions, as well as the productivity and fertility implications. Management of these conditions, as well as the timely and accurate flow of information, helps to establish and improve supply chain relationships.

Training Package Solutions

The creation of a new unit at Certificate IV level, for both the Meat Safety and Quality Assurance qualifications, will support the current national initiatives to establish nationally consistent identification, monitoring and evaluation of data relating to diseases and conditions.

Impact

- **Industry:** This project supports an industry-wide initiative already commenced under the federally-funded Health 4 Wealth project, 'Enhancing supply chain profitability through reporting and utilisation of peri-mortem information by livestock producers'.
- **RTOs:** Industry-led development of resources and pilot training for trainers has already commenced. RTOs will need to add this unit to their scope of registration.

Regulators: No impact.

Risks of Not Proceeding

The development of this unit of competency has been requested in association with a much broader industry project. From a foreign-market-access perspective, there is growing need for industry to gather Big Data to develop an active program to monitor for animal health diseases and conditions of concern and, where they are endemic, to control and/or eliminate them. If this training is not nationally endorsed, then controls over accuracy and consistency are diminished.

Priority Skill 6	Skill Description
Preparation of markets reports for beef and sheep	This project will seek to address some of the recommendations from the Rural and Regional Affairs and Transport Committee report, *Effect of market consolidation in the red meat processing sector*, by developing two units of competency for the preparation of market reports at the point of purchase in saleyards.

Relevant Occupations

- stock buyer
- livestock manager
- company financial controller
- farmer
- stock and station agent
- rural journalist
- livestock market analyst.

Drivers

The 2017 Rural and Regional Affairs and Transport Committee report, *Effect of market consolidation in the red meat processing sector*, called for greater transparency across the supply chain, including stock assessment at saleyards.

MLA market reporters use a nationally standardised language for the description of livestock put up for sale that relies on a combination of sex, age, fat and degree of muscularity. The aim of using standardised language is to provide a more accurate depiction of the market, highlighting aspects that will contribute to the ultimate price of the animal.

This project seeks to support the adoption of a standardised training program to support the use of this language to describe the stock and the prices achieved at saleyards.

Training package solutions

The development of two new accredited units of competency – one for sheep, and one for cattle

Impact

- **Industry:** This project supports a more consistent preparation of market reports.
- **RTOs:** Technical manuals for these processes already exist. A related MLA project to develop suitable assessment materials and a standardised training approach will prepare RTOs to deliver the new units. RTOs will need to add these units to their scope of registration.

Regulators: No impact.

Risks of Not Proceeding

The current practice of using varying and often confusing and misleading descriptors will continue.

Priority Skill 7	Skill Description
Improving meat quality	This project is for the development of a new unit of competency for the identification of secondary sexual characteristics in beef. There are small differences in meat palatability between animal sexes. Beef from bulls can be more variable and this is often associated with the higher variability in ultimate pH. Consequently, male cattle showing secondary sex characteristics – physical characteristics of a bull – have been excluded under the MSA system, as preliminary analyses of the MSA data indicate a small, yet consistent, sex effect, with heifers having lower eating-quality scores than steers.

Relevant Occupations
- meat grader
- quality assurance manager.

Drivers

Some meat industry customers are now requiring evidence that meat processing personnel have the skills to recognise and assess secondary sexual characteristics such as muscles on the neck and shoulder, inguinal canal and prominent erector muscle, penis snub and pubic tubercle.

Training Package Solutions

Develop one new unit of competency for inclusion in the Certificate III in Meat Processing (General).

Impact

- **Industry:** This project will ensure meat processing enterprises can continue to meet customer requirements
- **RTOs:** RTOs will need to add the new to their scope of registration and to develop trainer capability.
- **Regulators:** No impact.

Risks of Not Proceeding

The ability of meat processing enterprises to respond to emerging customer requirements will belimited.

Industry Priority for Generic Skills

The Meat Industry Reference Committee has declined to rank these skills because of their varying importance according to job role/level and industry sector.

Rank	Generic Skill
1	**Managerial/Leadership skills**
	Ability to effectively communicate with all functional areas of the organisation.
	Ability to represent and develop tasks and work processes for desired outcomes.
	Ability to oversee processes, guide initiatives and steer employees toward achievement of goals.
2	**Entrepreneurial skills**
	Ability to take any idea, whether it be a product and service, and turn that concept into reality and not only bring it to market but make it a viable product and/or service.
	Ability to focus on the very next step to get closer to the ultimate goal.
	Ability to weather the ups and downs of any business.
	Ability to sell ideas, products or services to customers, investors or employees etc.
2	**Learning agility/Information literacy/Intellectual autonomy and self-management skills**
	Ability to identify a need for information.
	Ability to identify, locate, evaluate, and effectively use and cite the information.
	Ability to discriminate and filter information for importance.
	Ability to do more with less.
	Ability to quickly develop a working knowledge of new systems to fulfil the expectations of a job.
	Ability to work without direct leadership and independently.
3	**Customer service/Marketing skills**
	Ability to interact with another human being, whether helping them find, choose or buy something.
	Ability to supply customers' wants and needs both via face to face interactions or digital technology.
	Ability to manage online sales and marketing.
	Ability to understand and manage digital products.
4	**Financial skills**

Rank	Generic Skill
	Ability to understand and apply core financial literacy concepts and metrics, streamlining processes such as budgeting, forecasting, and reporting, and stepping up compliance.
	Ability to manage costs and resources, and drive efficiency.
5	**Technology use and application skills**
	Ability to create and/or use of technical means understand their interrelation with life, society, and the environment.
	Ability to understand and apply scientific or industrial processes, inventions, methods, etc.
	Ability to deal with increasing mechanisation and automation and computerisation.
	Ability to do work from mobile devices rather than from paper.
6	**Data analysis skills**
	Ability to translate vast amounts of data into abstract concepts and understand data-based reasoning.
	Ability to use data effectively to improve programs, processes and business outcomes.
	Ability to work with large amounts of data: facts, figures, number crunching, analysing results.
8	**Communication/Collaboration including virtual collaboration/Social intelligence skills**
	Ability to understand and apply the principles of creating more value for customers with fewer resources (lean manufacturing) and collaborative skills.
	Ability to critically assess and develop content that uses new media forms and leverage these media for persuasive communications.
	Ability to connect with others deeply and directly, to sense and stimulate reactions and desired interactions.
9	**Language, Literacy and Numeracy (LLN) skills**
	Foundation skills of literacy and numeracy.
10	**Science, Technology, Engineering and Maths (STEM) skills**
	Sciences, mathematics and scientific literacy.
9	**Design mindset/Thinking critically/System thinking/Solving problems skills**
	Ability to adapt products to rapidly shifting consumer tastes and trends.
	Ability to determine the deeper meaning or significance of what is being expressed via technology.
	Ability to understand how things that are regarded as systems influence one another within a complete entity, or larger system.
	Ability to think holistically.

Rank	Generic Skill
12	**Environmental and sustainability skills**
	Ability to focus on problem-solving and the development of applied solutions to environmental issues and resource pressures at local, national and international levels.
13	**Other generic skills**

E. TRAINING PRODUCT REVIEW PLAN 2018–2021

The IRC Training Product Review Plan 2018–2021 for the Australian meat processing industry is provided in Attachment A.

Explanation

Time-critical issues and interdependencies

None identified at this stage.

Training products scheduled for review more than once in four years

None identified at this stage.

Training products with contentious or lengthy review

None identified at this stage.

F. IRC SIGN-OFF

This Workplan was agreed as the result of a properly constituted IRC decision.

Signed for and on behalf of the **Australian Meat Processing IRC** by its appointed Chair,

Cameron Dart

(Name of Chair)	Signature of Chair
	Date: 27 April 2018

ATTACHMENT A

IRC Training Product Review Plan 2018–2021

Relevant training package: AMP Australian Meat Processing

Contact details: Skills Impact Ltd, 559A Queensberry Street, North Melbourne VIC 3051

Date submitted to Department of Education and Training: 28 April 2018

Important Note: The Meat Industry Reference Committee advises that, in addition to the schedule work outlined in this Work Plan, on occasion it may be necessary to seek urgent additional allocation of work for the meat industry to accommodate urgent requirements as a result of legislation or an overseas audit. If an urgent matter arises it will be necessary to seek funding not foreshadowed in the Work Plan in order to enable a timely response that does not inhibit market access.

2018 - 2019	
Management skills – review of the Diploma and Advance Diploma qualifications	This project will review the Diploma and Advance Diploma qualifications to ensure that they are fit for purpose; to ensure skills in meat processing retail, poultry and feedlot production units have been included; and that imported units remain applicable after they have undergone revision within their own training package.

Undertake workplace incident investigations	This project is for the development of a new unit of competency for the planning, implementation and reporting of an investigation into a workplace incident. An incident within a meat processing can apply to a broad number of incidents, including WHS incident, animal welfare incident or environmental incident.
Operation and management of biogas facilities in a processing plant	This project will provide training in company safety and regulatory responsibilities associated with biogas capture and handling. Biogas is a byproduct of waste management in meat processing using anaerobic ponds/lagoons. This gas contributes to greenhouse gases but can be used as fuel resource that produces less carbon emissions than other fuels. Consequently there has been an increase in the practice of collecting and handling biogases.
Animal health data collection, evaluation and monitoring	This project will develop training to allow for accurate and timely data analysis related to animal health for feedback into the meat processing industry, which allows for real time business responses. It also provides the added benefit of promoting supply chain relationships when information can be provided in a timely and accurate manner.
Preparation of markets reports for beef and sheep	This project will seek to address some of the recommendations from the Rural and Regional Affairs and Transport Committee report, *Effect of market consolidation in the red meat processing sector*, by developing two units of competency for the preparation of market reports at the point of purchase in saleyards.
Improving meat quality	This project is for the development of a new unit of competency to train the skills for the identification of secondary sexual characteristics in beef. These characteristics can affect meat palatability and can change the carcase grade under the Meat Standards Australia (MSA) grading system.
2019 - 2020	

Perform and analyse microbiology test	This project is to adopt new units within the Certificate IV in Meat Processing (Quality Assurance) and Diploma of Meat Processing to build skills in the collection and interpretation of microbiological test results.
Data Interrogation skills	This project is to adopt new units within the Certificate IV in Meat Processing (Quality Assurance) and Diploma of Meat Processing to build data interrogation and analysis skills.
Skills in DEXA technologies	This project focuses on developing operator and maintenance skills to support the implementation of DEXA technologies.
Quality Assurance qualification	This purpose of this project is to investigate the feasibility of developing a Diploma in Quality Assurance. The outcomes for a Diploma in Quality Assurance Develop is to train higher-level skills in management of meat microbiology, food safety, data interrogations, quality systems management skills, energy efficiency, wastewater usage, and wholesale value-adding.
2020–2021	
Packaging technology skills update	This project will review the need for inclusion of new units of competency in the Certificate IV in Meat Processing (General) or Diploma of Meat Processing to address changes in packaging technologies. Continuing consultation to assess application of emerging technologies to the meat industry.
Feedlot operations qualification review	Review and update the Certificate III in Feedlot Operations to meet identified requirements and address industry priorities.

ATTACHMENT B

Active Meat IRC Projects for the Meat Processing Industry

Relevant training package: Meat Industry Training Package

Contact details: Skills Impact Ltd, 559A Queensberry Street, North Melbourne, VIC, 3051

Date submitted to Department of Education and Training: 30th June, 2019

Meat Industry Reference Committee		
YEAR	**Priority Skills**	**Qualification Code & Title**
2018	Development of a food-safe pest control management program	Development of new unit/s and skill sets
2018	New units of competency in threat and vulnerability in assessment critical control points	Development of one new unit/s
2018	Adding value to material handling through traceability of products	Development of new unit/s and skill sets

ATTACHMENT C

2018–2019 Project Details

Project Title: Management Skills – Review of the Diploma and Advanced Diploma qualifications

Description

This case for change is for the review and updating of the Diploma and Advanced Diploma in Meat Processing qualifications. Twenty-eight current units of competency will be reviewed for suitability, and up to ten additional units either developed or imported to meet the expanded scope requirements.

Rationale

- There are a number of industry drivers that have necessitated this review, as follows:

- The Diploma of Meat Processing (Meat Retailing) has had very few graduates since it was introduced in 2000. It is proposed that this qualification should be removed from the *AMP Australian Meat Processing Training Package.* However, as part of this removal, the industry needs to ensure that the future career development needs of meat retailers are also addressed in the Diploma of Meat Processing.

- The speed of technological development, automation, and use of Big Data are rapidly impacting the management development requirements of the industry. It is proposed that the new units of competency being developed as part of cross-industry projects be considered for inclusion in the Diploma and Advanced Diploma of Meat Processing.

- Further to the point above, as a result of the current development of Maintenance qualifications, the review of the Diploma and Advanced Diploma will need to ensure that there is sufficient scope within these qualifications for graduates of lower-level qualifications to continue to develop their maintenance careers by undertaking relevant higher-level qualifications.

- The inclusion of poultry processors and the feedlots sub-sectors were not considered when these qualifications were developed. Both sub-sectors, under the auspices of the Meat Industry Standing Committee, are now moving towards the inclusion of higher level qualifications as part of their career planning. The scope and content of these

qualifications need to be reviewed to ensure that the management development needs of each of these sub-sectors are addressed. In particular, both sub-sectors have indicated that project and financial management are high priorities for their sub-sectors.

- As some of the current imported units have been updated in their own training packages, they have become less suitable for use in the meat industry. For example, *SIRXMGT005A Set strategic plans* now refers to 'Store' all the way through; this is no longer relevant to the meat processing sectors. All imported units will be reviewed for suitability and either (a) negotiations be undertaken with the relevant SSO to adjust the wording, or (b) new, more suitable units of competency be developed.

- Increased vertical integration means that staff in various parts of the enterprise will need mobility to move from sector to sector and/or understand all aspects of operation.

Ministers' Priorities Addressed:

1. **Ensure obsolete and superfluous qualifications are removed from the system**
   This project seeks to remove the Diploma of Meat Processing (Meat Retailing) from the *AMP Australian Meat Processing Training Package*, by ensuring that the requirements of this sector are addressed in the Diploma of Meat Processing.

2. **Ensure that more information about industry's expectations of training delivery is available to training providers to improve their delivery and to consumers to enable more informed course choices**
   The current RTOs for these qualifications are very closely associated with the industry and will be included in the consultation and development processes.

Ensure that the training system better supports individuals to move easily from one related occupation to another

Movement across these sub-sectors will be facilitated by broadening these qualifications to include additional industry sub-sectors.

3. **Improve the efficiency of the training system by creating units that can be owned and used by multiple industry sectors**
   Current units will be reviewed and broadened for applicability across all meat industry sub-sectors, as will new units.

4. **Foster greater recognition of skill sets**

This review relates to full qualifications. However, new skill sets may be developed as sub-sets of the qualifications if these are required by the newly included sub-sectors.

5. **Ensures that new training courses can be developed as quickly as industry needs them and available to support niche skill needs**
Training materials development and RTO capability will be considered as part of the development process. In particular, financial management and project management are high-priority areas for the feedlots and poultry sub-sectors, and customisation of materials to suit their needs will be given priority.

Consultation Plan   Work in this project will be overseen by the Meat Industry Reference Committee.

A Technical Advisory Committee will be established, comprising:

- at least two representatives from each of the feedlots, poultry, and meat retailing sub-sectors
- one representative from the stock transport sector
- one representative from the meat processing sector
- one representative from each of the current RTOs offering these qualifications
- The National Meat Industry Training Advisory Council.

This Committee will meet a minimum of three times during the project.

Individual consultation will be undertaken with:

- AMIC (and in particular the National Meat Retail Council)
- Australian Lot Feeders Association
- Inghams, Baiada, and three medium-sized poultry processors.

Scope of Project   This project will take six months from the time of commencement.

AMP Australian Meat Industry Training Package

- Diploma of Meat Processing
- Advanced Diploma of Meat Processing
- Diploma of Meat Processing (Meat Retailing) – to be removed.

The feedlot industry has expressed an interest in skill sets. The possibility of developing skill sets and sub-sets of these qualifications will be explored during the consultation periods.

Twenty-eight current units of competency will be reviewed for current suitability, and up to ten additional units either developed or imported to meet the expanded scope requirements.

Current units of competency

- AMPMGT501 Design and manage the food safety system
- AMPMGT502 Manage new product or process development
- AMPMGT503 Develop and assess a meat retailing business opportunity
- AMPMGT504 Develop, manage and maintain quality systems
- AMPMGT505 Manage maintenance systems
- AMPMGT506 Manage utilities and energy
- AMPMGT507 Manage and improve meat industry plant operations
- AMPMGT508 Manage environmental impacts of meat processing operations
- AMPMGT509 Manage, maintain and continuously improve workplace health and safety plans and systems
- AMPMGT510 Manage transportation of meat, meat products and meat by-products
- AMPMGT601 Benchmark to manage and improve enterprise performance
- AMPMGT602 Monitor and manage organisational legal responsibilities
- AMPMGT603 Manage meat processing systems to maintain and improve product quality
- AMPMGT604 Manage effective operation of meat enterprise cold chain and refrigeration systems
- AMPMGT605 Assess and purchase livestock
- AMPMGT606 Analyse and develop enterprise systems for new opportunities
- AMPMGT607 Establish new markets
- BSBCOM501 Identify and interpret compliance requirements
- BSBDIV601 Develop and implement diversity policy
- BSBFIM501 Manage budgets and financial plans
- BSBFIM601 Manage finances
- BSBMGT605 Provide leadership across the organisation
- BSBMGT617 Develop and implement a business plan
- BSBMKG502 Establish and adjust the marketing mix
- MSL916005 Manage complex projects
- SIRXCLM402 Manage store facilities
- SIRXMGT005A Set strategic plans
- SIRXMGT006A Initiate and implement change

Project Title: Conduct a workplace incident investigation

Description   This project is for the development of a new unit of competency for the planning, implementation and reporting of an investigation into a workplace incident.

Rationale   Under current WHS legislation, a Person Conducting a Business or Undertaking (PCBU) must ensure, so far as is reasonably practicable, that workers are safe from injury and risks while at work. This requires safe systems of work to be in place. Should a workplace incident or injury occur, the PCBU must investigate it to find the cause and to avoid it happening in future. The function of an investigation is to establish all the factors involved in the incident and determine appropriate action/s to prevent a recurrence.

While the description above applies to work health and safety incidents, investigation processes can also apply to other incidents in a meat processing plant, such as animal welfare or environmental incidents. When there has been a port-of-entry rejection, QA teams in plants are required to undertake an investigation to establish a cause and put in place preventative and corrective actions.

In the past, investigations have been the responsibility of external authorities or third parties, and this remains the case where there are serious incidents, but the modern trend is to move this responsibility to the enterprise and to monitor effectiveness of documented processes and compliance through auditing processes.

There are a range of existing units of competency relating to conducting investigations, but most of these relate to specific areas, and/or are pitched at an AQF level not reflective of where the activity might be conducted in a meat processing enterprise. For example:

- AHCPMG509 Investigate a pest control failure
- UEENEEG172A Investigate and report on electrical incidents and causes
- MEM15018B Investigate consumer complaints
- PUAFIR608A Investigate fatal fires
- TLIF5017 Investigate rail safety incidents
- BSBWHS505 Investigate WHS incidents
- NWPTRD012 Investigate, rectify and report on trade waste incidents.

The general principles of an investigation process are common across most of these units, and the proposed unit will develop skills in the underlying principles and build capability to adapt these skills to specific types of incidents.

Ministers' Priorities Addressed:	1. **Ensure obsolete and superfluous qualifications are removed from the system** There are no current investigation units in the *AMP Australian Meat Processing Training Package*, but in the process of undertaking this project, the Meat IRC may be able to recommend to other IRCs that a generic investigations unit may be able to replace multiple incident-specific units.
	2. **Ensure that more information about industry's expectations of training delivery is available to training providers to improve their delivery and to consumers to enable more informed course choices** Technical manuals and guidelines for a wide range of investigation processes already exist. The meat industry plans to develop industry-specific training and assessment materials to accompany this unit.
	3. **Ensure that the training system better supports individuals to move easily from one related occupation to another** The proposed unit will be generic and focus on the principles and processes of an investigation, regardless of its specific nature. This will enable students to apply these skills across a range of industries.
	4. **Improve the efficiency of the training system by creating units that can be owned and used by multiple industry sectors** As above.
	5. **Foster greater recognition of skill sets** A skill set is not required for this skill.
	6. **Ensures that new training courses can be developed as quickly as industry needs them and available to support niche skill needs** As indicated in Priority 2 above, the industry is already planning implementation.
Consultation Plan	A Technical Advisory Committee will be established by the Meat Industry Reference Committee and will comprise of WHS, animal welfare, Quality Assurance and environmental experts who will guide the development and ensure its applicability across disciplines.
Scope of Project	This work can be completed within three months of commencement. *AMP Australian Meat Industry Training Package* • Certificate IV in Meat Processing (General). One new unit of competency to be developed: • Plan, prepare and report a workplace incident investigation.

Project Title: Operation and management of biogas facilities in a processing plant

Description

This project will seek to develop two new units related to the safe operation and management of biogas facilities in a processing plant.

Rationale

Biogas is the product of anaerobic biological breakdown of organic substances. Anaerobic ponds or lagoons (the terms are interchangeable) are a common treatment step of wastewater produced from the meat industry. The technology is simple and inexpensive to operate, while significantly reducing the wastewater organic loading. The by-product, biogas, is both a valuable fuel and a greenhouse gas (contributing towards carbon emissions). Captured biogas can be used to fuel a boiler or for co-generation. The burning of the biogas also significantly reduces carbon emissions. Hence, the covering of the anaerobic ponds has recently become popular.

The collection and handling of biogas in covered anaerobic lagoons (CAL) from the bacterial degradation of meat processing wastewater is accompanied by a number of hazards, the most significant of which include:

- the formation of hydrogen sulphide gas (H2S), which is toxic
- the flammability of biogas when mixed with air
- suffocation due to the exclusion of air from especially confined spaces.

As the capture of biogas becomes more common, company safety and regulatory responsibilities are increasing. There is a need for companies to manage their biogas risks.

Ministers' Priorities Addressed:

6. **Ensure obsolete and superfluous qualifications are removed from the system**
   Not relevant to this project, as it will affect only existing, well-used qualifications.

7. **Ensure that more information about industry's expectations of training delivery is available to training providers to improve their delivery and to consumers to enable more informed course choices**
   The Australian Meat Processor Corporation (AMPC) has recently updated the biogas management operator guidelines for the industry. This comprehensive resource is accompanied by short films, fact sheets and quizzes, which can be used by training providers.

8. **Ensure that the training system better supports individuals to move easily from one related occupation to another**
Biogas capture is an emerging technology and is already widely used in sectors such as food processing and wastewater treatment. The skills gained by operators and managers at meat processing plants will be easily transferable to these other sectors.

9. **Improve the efficiency of the training system by creating units that can be owned and used by multiple industry sectors**
These units will be designed primarily for the meat processing sector but will also be sufficiently generic to be utilised in other sectors where biogas is captured.

   We are also aware that this is an area of development that could possibly be partially addressed by the Environment Cross Sector Committee, and collaboration will occur with this committee during the project.

10. **Foster greater recognition of skill sets**
A skill set was considered, but it is believed that two single units of competency will meet industry requirements.

11. **Ensures that new training courses can be developed as quickly as industry needs them and available to support niche skill needs**
As indicated in Priority 2 above, the industry has already developed comprehensive resources to support implementation.

Consultation Plan   The industry runs an Environment Managers' Network, which meets several times a year throughout Australia. Every processing plant is represented on the mailing list and this group will become the consultative group to provide advice during the development of these units. The project will be tabled as a discussion item at every scheduled meeting during the development period, and broader consultation by email will be taken with all other members.

Expert technical expertise is also available from the consultants who undertook the development of the manual for AMPC.

Scope of Project   This work can be completed within three months of commencement.

AMP Australian Meat Industry Training Package

- Certificate III in Meat Processing (General)
- Diploma of Meat Processing.

Two units of competency will be developed:

- Operate biogas collection facilities

- Manage biogas operations.

Project Title: Animal Health Data Collection

Description

This project will seek to develop a new unit of competency for the collection, monitoring and evaluation of animal health data.

Rationale

There is currently a world-wide trend to utilise ante- and post-mortem inspection procedures to gain data to address food safety, animal welfare and health issues. In Australia, there are currently a number of industry initiatives underway, such as the Health 4 Wealth project, 'Enhancing supply chain profitability through reporting and utilisation of peri-mortem information by livestock producers'; MLA's roll-out of Livestock Data Link, and the National Sheep Health Monitoring Program. From a foreign-market-access perspective, there is also growing need for industry to gather Big Data to demonstrate an active program to monitor for animal health diseases and conditions of concern and, where they are endemic, to control them.

The monitoring and control of a range of diseases has commercial drivers for processors, including improving carcase yield and profitability; offal recovery and condemnation rates. Prevalence of diseases and conditions can also affect the livestock-buying patterns of processors.

For producers, control of diseases and conditions enables the value of individual animals to increase, as the financial consequences of even low rates of infection can be significant. Producers are therefore keen to understand the incidence and management of diseases and conditions, as well as the productivity and fertility implications. Management of these conditions as well as the timely and accurate flow of information helps to establish and improve supply chain relationships.

The creation of a new unit at Certificate IV level, in both the Meat Safety and Quality Assurance qualifications, will support the current national initiatives to establish nationally consistent identification, monitoring and evaluation of data relating to diseases and conditions.

Ministers' Priorities Addressed:

1. **Ensure obsolete and superfluous qualifications are removed from the system**

Not relevant to this project, as it will affect only existing, well-used qualifications.

2. **Ensure that more information about industry's expectations of training delivery is available to training providers to improve their delivery and to consumers to enable more informed course choices**

   A related government/industry project, 'Enhancing supply chain profitability through reporting and utilisation of peri-mortem information by livestock producers', will provide the information necessary for the development of suitable resources and a training strategy to upskill industry trainers in this area.

3. **Ensure that the training system better supports individuals to move easily from one related occupation to another**

   This unit will be specifically for the meat processing sector, as that is the only place where such data can be collected.

4. **Improve the efficiency of the training system by creating units that can be owned and used by multiple industry sectors**

   This unit will be specifically for the meat processing sector, as that is the only place where such data can be collected.

5. **Foster greater recognition of skill sets**

   A skill set was considered, but it is believed that a single unit of competency will meet industry requirements.

6. **Ensures that new training courses can be developed as quickly as industry needs them and available to support niche skill needs**

   As indicated in Priority 2 above, the industry is already planning implementation.

Consultation Plan

The Health 4 Wealth project, 'Enhancing supply chain profitability through reporting and utilisation of peri-mortem information by livestock producers', received funding from the Commonwealth Government under Round 2 of the Rural Research and Development for Profit Program. The project is a partnership between APL, MLA, AMPC, Agriculture Victoria (AgVic) and the South Australian Research and Development Institute (SARDI). A Project Steering Committee comprising representatives of AgVic, AMPC, APL, MLA, SARDI and Animal Health Australia (AHA) has been established to guide and direct the project and to ensure it is accountable the respective livestock industries and project partners.

This group will guide and support the development of the proposed unit of competency, and the industry consultation processes established within the

Health 4 Wealth project will be utilised during the development stages for the unit.

Scope of Project   This work can be completed within three months of commencement.

AMP Australian Meat Industry Training Package

- Certificate IV in Meat Processing (Meat Safety)
- Certificate IV in Meat Processing (Quality Assurance).

One unit of competency will be developed:

- Collect, monitor and evaluate animal health data.

Project Title: Preparation of market reports for sheep and beef

Description   This project will seek to address some of the recommendations from the Rural and Regional Affairs and Transport Committee report, *Effect of market consolidation in the red meat processing sector*, by developing two units of competency for the preparation of market reports at the point of purchase in saleyards.

Rationale   The 2017 Rural and Regional Affairs and Transport Committee report called for greater transparency across the supply chain, including stock assessment at saleyards.

MLA market reporters use a nationally standardised language for the description of livestock put up for sale that relies on a combination of sex, age, fat and degree of muscularity. The aim of the language is to provide a more accurate depiction of the market, highlighting aspects that will contribute to the ultimate price of the animal.

This project seeks to support the adoption of a standardised training program to support the use of this language to describe the stock and the prices achieved at saleyards.

The development and delivery of two new endorsed units of competency – one for sheep, and one for cattle will result in a more consistent preparation of market reports.

Ministers' Priorities Addressed:	1. **Ensure obsolete and superfluous qualifications are removed from the system**
	Not relevant to this project, as it will affect only existing, well-used qualifications.
	2. **Ensure that more information about industry's expectations of training delivery is available to training providers to improve their delivery and to consumers to enable more informed course choices**
	Technical manuals for these processes already exist. A related MLA project to develop suitable assessment materials and a standardised training approach will prepare RTOs to deliver the new units.
	3. **Ensure that the training system better supports individuals to move easily from one related occupation to another**
	These units relate to a very specific skill that may be utilised across a number of sectors.
	4. **Improve the efficiency of the training system by creating units that can be owned and used by multiple industry sectors**
	These units will be specifically for the preparation of market reports, a skill that may be required by processor stock purchasers, stock and station agents, and agricultural journalists. The units will be sufficiently generic to be utilised across a number of agricultural sectors.
	5. **Foster greater recognition of skill sets**
	A skill set is not required for this skill.
	6. **Ensures that new training courses can be developed as quickly as industry needs them and available to support niche skill needs**
	As indicated in Priority 2 above, the industry is already planning implementation.

Consultation Plan   A Technical Advisory Committee, established by the Meat Industry Reference Committee, and consisting of representatives from MLA, saleyards, stock agents and processors, will oversee the development of these units of competency. Stakeholder consultation will be facilitated through each sector's peak organisations.

Scope of Project   This work can be completed within three months of commencement.

AMP Australian Meat Industry Training Package

- Certificate IV in Meat Processing (General)

New units of competency to be developed:

- Prepare a market report – sheep

- Prepare a market report - beef.

Project Title: Improving meat quality

Description	This project is for the development of a new unit of competency for the identification of secondary sexual characteristics in beef.
Rationale	There are small differences in meat palatability between animal sexes. Beef from bulls can be more variable and this is often associated with the higher variability in ultimate pH. Consequently, male cattle showing secondary sex characteristics – physical characteristics of a bull – have been excluded under the MSA system, as preliminary analyses of the MSA data indicate a small, yet consistent, sex effect, with heifers having lower eating-quality scores than steers. As a result, some customers are now requiring evidence that meat processing personnel have the skills to recognise and assess secondary sexual characteristics such as muscles on the neck and shoulder, inguinal canal and prominent erector muscle, penis snub and pubic tubercle.
Ministers' Priorities Addressed:	1. **Ensure obsolete and superfluous qualifications are removed from the system** Not relevant to this project, as it will affect only existing, well-used qualifications. 2. **Ensure that more information about industry's expectations of training delivery is available to training providers to improve their delivery and to consumers to enable more informed course choices** Some industry reference materials, such as MLA's *Cattle assessment manual,* are currently available. However, MINTRAC will need to develop more detailed training and assessment materials to support this unit. 3. **Ensure that the training system better supports individuals to move easily from one related occupation to another** This unit will be specifically for the meat processing sector, as that is the only sector where these skills are required. 4. **Improve the efficiency of the training system by creating units that can be owned and used by multiple industry sectors**

This unit will be specifically for the meat processing sector, as that is the only sector where these skills are required.

5. **Foster greater recognition of skill sets**
A skill set was considered, but it is believed that a single unit will meet industry requirements.

6. **Ensures that new training courses can be developed as quickly as industry needs them and available to support niche skill needs**
As indicated in Priority 2 above, the industry is already planning implementation.

Consultation Plan   A Technical Advisory Committee will be established to guide the development of this unit. Membership will consist of representatives from:

- CSIRO
- two meat processing plants supplying Coles
- one potential RTO
- AMIC
- MSA.

Scope of Project   This work can be completed within three months of commencement.

AMP Australian Meat Industry Training Package

- Certificate III in Meat Processing (General).

One new unit of competency to be developed:

- Identify secondary sexual characteristics - beef.