



A U S T R A L I A N M E A T P R O C E S S O R C O R P O R A T I O N

# Encouraging plant uptake of industry R&D outcomes

## FINAL REPORT

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## 1.0 Abstract

Significant government and industry investment has been made in research and development in the red meat processing industry. The real success of this investment lies in the outcomes of the initiatives being taken up and successfully implemented by enterprises along the value chain. The challenge for AMPC is to market the R&D initiatives so that meat processing plants are aware of the opportunities to improve their own sustainability and efficiency, and plant personnel have the skills to implement the initiative in their own plant.

This project focuses on encouraging, supporting and building the skills of meat industry personnel considering adopting new technologies in their plants to achieve the best possible outcomes. Professional development is provided in the form of an e-learning program for industry project managers that assists them to apply a systematic project management approach to designing and planning their project, with the outcomes of the program comprising a project charter or business case for their project and a project management plan for their project.

The e-learning program has been developed in Adobe Captivate 8 software that allows a wide range of interactive and responsive HTML5-based e-learning content that may be used on desktops or loaded onto the web. The Adobe Captivate software provides total flexibility to users in that it can be provided as a DVD and used individually by industry project managers as a stand alone program, or it can be used by groups such as RTOs, loaded onto a website and delivered to small groups by a facilitator. A 'Handbook for participants' supports the program and may be used for reference and review. The AMPC/MINTRAC '*Resource manual for adopting technology*' is recommended as a resource for the program.

In the process of undertaking the e-learning program, personnel enrolled in the program with an RTO may gain a credit for the '*Design complex projects*' unit which may be counted as an elective unit in the Diploma or Advanced Diploma of Meat Processing.

## 2.0 Executive summary

In spite of government and the red meat processing industry's significant investment in research, development and extension initiatives directed at improving the sustainability and efficiency of the red meat processing industry, studies indicate that decision makers in plants remain reluctant to adopt technology and believe in benefits for their plants. Recommendations have been made in the studies for individual support for plant personnel to address their specific attitudes to adoption, and industry-wide solutions to build the expertise of the plant workforce in adoption of new technology, and expertise to run and maintain the plant <sup>1</sup>.

MLA and AMPC have strategies in place to provide individual support to plants to identify their specific needs and link them to providers through the MLA Collaborative Innovation Strategy and initiatives such as the AMPC/MINTRAC maintenance engineering network meetings. Additionally there are initiatives specifically supporting plants adopting new technologies such as AMPC/MINTRAC '*Resource manual for adopting technology.*'

An e-learning program has been developed in this project to equip industry personnel with the skills they need to plan the implementation of an industry R&D initiative in their own enterprise by applying a systematic project management approach to the design of new technology projects and in so doing complete the requirements for the unit '*Design complex projects*' which may constitute one elective unit towards the Diploma or Advanced Diploma of Meat Processing.

The e-learning program takes participants through the stages in the design phase of project management, supported by industry experience at each stage of project management. The participants compile the components of project management documentation for their own projects as they proceed through each stage. At the conclusion of the project, participants have developed the project charter or business case for their project and the project management plan for their project.

The e-learning program is developed in Adobe Captivate 8 software that allows a wide range of interactive and responsive HTML5-based e-learning content that may be used on desktops or loaded onto the web. The Adobe Captivate software provides total flexibility to users in that the program can be provided as a DVD and used by single users as a stand alone program (eg by industry project managers planning the implementation of a PIP), or it can be used by groups (such as RTOs), loaded onto a website, wikis and forums hosted and delivered to groups of industry personnel by a facilitator.

A '*Handbook for participants*' is provided as a resource for reference and review, and includes additional resources for participants. The AMPC/MINTRAC '*Resource manual for adopting technology*' is recommended as a resource for the program.

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<sup>1</sup> Coleman, G. Issues relevant to the adoption of technology in the meat processing industry, 2013

### 3.0 Objectives of the project

The objective of this project is to develop a training program that equips meat industry personnel with the skills they need to plan the implementation of an industry R&D initiative in their own enterprise. The skills they gain through participation in the training program include:

- Assessing their own enterprise priorities, researching the industry R&D products database and matching the initiatives on the database with their own priorities
- Compiling a case for uptake of the R&D initiative in their enterprise
- Developing a plan for marketing the R&D initiative within their enterprise
- Writing a proposal, eg for an AMPC PIP initiative, government funding or internal financing
- Developing an implementation plan for the initiative based on project management.

These skills are gained through participation in small groups in a facilitator led, interactive e-learning program that utilizes e-tivities and networking with individuals in the group and is based on scenarios of industry enterprises implementing R&D initiatives. In completing the program participants may complete the requirements for credit for a project management unit of competency.

## 4.0 Products of the project

The main product of the project is the e-learning program, '*Designing complex projects, an e-learning program for project managers in the meat industry.*' This is an interactive program developed in Adobe Captivate 8 software that may be used on desktops or loaded onto the web. Individual users may be provided with a DVD and undertake the program individually, or the program may be loaded onto the web and delivered to groups by a facilitator. The program supports users through the design phase of project management with the outcomes of the program including:

- A project charter or business case for their project
- A project management plan for their project.

A '*Handbook for participants*' is provided as a resource for reference and review and includes additional resources for participants.

The program has been developed to meet the requirements for the unit of competency, '*Design complex projects*' which may be imported as an elective unit into the Diploma or Advanced Diploma of Meat Processing. In order to gain credit for this unit, personnel would need to complete the unit under the auspices of a Registered Training Organisation (RTO) with scope for the unit.

## 5.0 Methodology

The methodology for the project included:

- Familiarisation with the red meat processing industry R&D outcomes database in order to assess how participants in the proposed program would go about identifying suitable projects from the database for their own plants and how this would be incorporated into the proposed training program
- Reviewing uptake of R&D outcomes by interviewing AMPC personnel to determine what R&D initiatives should be incorporated in the proposed training program
- Reviewing project management units of competency to identify whether there is a unit on planning project implementation that participants in the proposed training program could be credited with
- Reviewing similar training initiatives in other industries to identify and incorporate relevant learnings
- Working with AMPC staff to identify most appropriate R&D initiative that has been implemented in a plant that could be used as the example in the proposed training program
- Developing a brief proposal for the plant that sets out their requirements in the proposed training program and discuss this with the plant to gain their agreement to participate in the project
- Developing a draft outline of the training program that:
  - incorporates the steps in the systematic process of planning the implementation of an R&D initiative in their plant (including assessing their plant priorities, researching the AMPC R&D database, compiling a case for implementing the initiative in their plant, developing an internal marketing plan, developing a project implementation plan)
  - includes tools for each step in the process
  - meets the requirements of the unit of competency if an appropriate unit of competency is available
- Developing the script for filming the plant experience implementing an R&D initiative. In order to make it as easy as possible for other plant personnel participating in the training program to be able to see the similarity with their own plant and the simple step by step process for achieving it in their own plant the script needs to include footage of the R&D initiative that is being used as the example and interviews with plant personnel that explains how they went about doing each step in the process and relevant tips, pitfalls etc
- Filming the video footage for the module
- Constructing the e-learning module and online delivery plan using a suitable platform such as Moodle so that the final product (ie the training program) can be undertaken by participants online and the program is interactive incorporating the activities that need to be undertaken by the participants in each step to complete that step (eg develop an internal marketing plan) and tools such as discussion boards that enable participants to join in online discussions so they can network with other participants and interact with a facilitator

- Developing support material for the module that can be used by future providers of the program to deliver the program, eg facilitators guide, handbook for participants
- Making recommendations on the future use of the program such as:
  - plants participating in AMPC R&D projects must complete the module
  - incorporating the competencies associated with the module in the Meat Industry Training Package so that industry personnel gain credits toward qualifications by completing the module.

The author should outline the outcomes from the project. This section should also include the key data sets with appropriate statistical analysis. The use of graphs and tables to summarise data is strongly encouraged. All project data should be included as an Appendix or supplied electronically.

## 6.0 Results and discussion

As reflected in the AMPC priorities for R,D&E for 2014

*'The value of research and development is only delivered when outcomes are taken up and successfully implemented by enterprises along the values chain.'*

This project aims to encourage plants to adopt new technologies by providing their personnel who manage the adoption of new technology with a professional development opportunity in the form of support through the design phase of adopting a new technology in their plants.

A study identifying the issues related to the adoption of technology in the meat processing industry (Coleman 2013) reported a very high uptake in technology by processors participating in the study (all 63 processing companies reported adopting some new technology in the past two years). In spite of the high uptake of technologies this study reported that

*'the results from this survey suggest that the meat processing industry in general, and decision makers in particular, have a broad reluctance to adopt technology and to believe that the reported benefits of adoption apply to their particular plant. Part of the reasons relate to specific attitudes to adoption and part to scepticism about its benefits.'*

The study's recommendations included:

- Change strategies personalized to meet the needs of individual plants and joint problem solving sessions with an independent advisor
- Analysis of onsite expertise required to run and maintain plants and training the local workforce to reach the required level of expertise
- Assisting MINTRAC to develop onsite training for employees to adapt to automated technologies.

A study conducted by MINTRAC (Richardson 2013) indicated that

*'Industry personnel welcomed the opportunities of hearing about current research outcomes and the implications for their plants.'*

A range of options is currently available to support plants adopting new technologies. These include:

- Support from AMPC staff, and access to R&D initiatives and papers on the MLA and AMPC websites such as the industry fact sheets and case studies on new technologies adopted by plants, eg Robotic brisket cutter and Automated hook recovery and cleaning system
- Support for each plant from MLA's innovation development managers through MLA's Collaborative Innovation Strategy aiming to work with plants to identify new initiatives and link them with resource providers and tracking adoption of new technologies over time
- Support from technology companies that supply the industry such as MAR, Scott Technology and Argus Real Cold
- The AMPC/MINTRAC 'Resource manual for adopting technology – introducing new equipment in meat processing.'

In summary, these studies indicate that meat plants are taking up new technologies but decision makers

in plants remain reluctant to adopt technology and believe in benefits for their plants. Coleman recommended both individual support for plant personnel to address their specific attitudes to adoption and industry-wide solutions to build the expertise of the plant workforce in adoption of new technology and expertise to run and maintain the plant. MLA and AMPC have strategies in place to provide individual support to plants to identify their specific needs and link them to providers through the MLA Collaborative Innovation Strategy and initiatives such as the AMPC/MINTRAC maintenance network meetings. Additionally there are initiatives specifically supporting plants adopting new technologies such as AMPC/MINTRAC *'Resource manual for adopting technology.'*

The e-learning program that is the product of this project provides another strategy to support individual plants and develop the skills of industry personnel to apply a systematic process to planning and designing projects in their plants. In the process of completing the module, industry participants will work through the design stage of their project and in so doing complete the requirements for the unit *'Design complex projects.'* This unit may be counted as one of the elective units in the Diploma or Advanced Diploma of Meat Processing. Industry personnel may continue to build their project management skills by working through their project in association with completing the units *'Manage complex projects'* and *'Close complex projects.'* The unit *'Manage complex projects'* is already offered in the Diploma. The other two units in project management (ie design and close complex projects) may currently be counted as the two elective units that may be imported from any other Training Package. This would potentially enable personnel to enroll with an RTO in the three project management units (and apply them to the management of their new technology project) and potentially gain three of the six elective units required for the qualifications of Diploma or Advanced Diploma of Meat Processing.

The e-learning program follows the format of the unit *'Design complex projects.'* The format provides a systematic process to design and plan the plant projects and is consistent with the proposed products of this project. The elements for the unit are:

- Identify project opportunities and undertake scoping
- Analyse project feasibility
- Develop project plans
- Manage establishment of project.

The unit format is also consistent with the format set out in the AMPC/MINTRAC *'Resource manual for adopting technology'* although the resource manual goes further than just design the project to also cover managing and closing the project. The resource manual will be used as a learning resource for the e-learning module. The format of the resource manual is:

- Exploring the potential of new technology for the business
- Planning for installation
- Managing the installation process
- Management and review after implementation.

In line with Coleman's recommendations in his study on issues related to the adoption of new technologies the e-learning program enables plant personnel to receive input and support tailored to their own plant project. The program features an industry project manager explaining how they design and plan the adoption of new technology projects in their company. Nekta Nicolaou, Group Engineering

Projects Manager at Thomas Foods International was interviewed for this purpose.

By applying a systematic approach to planning the implementation of a new technology, the e-learning program aims to place industry project managers in the best possible position to gain successful outcomes from the installation of new technologies in their plants. The outcomes of the program include:

- A project charter or business case for their project
- A project management plan for their project.

The e-learning program has been developed in Adobe Captivate 8 software that allows a wide range of interactive and responsive HTML5-based e-learning content that may be used on desktops or loaded onto the web. The Adobe Captivate software provides total flexibility to users in that it can be provided to users as a DVD and used by single users as a stand alone program (eg industry project managers planning a Plant Initiated Projects) or it can be used by groups (such as RTOs), loaded onto a website, the forums and wikis hosted, and delivered to groups by a facilitator.

The program is supported with a '*Handbook for participants*' that may be used in conjunction with the e-learning program and provides a resource for reference and review. The handbook also sets out the assessment tasks for each module as a review for participants working through the tasks to build the project documentation including the business case and project management plans. The handbook includes other resources that can be used if participants are seeking more information on specific areas.

AMPC may provide the e-learning program directly to plant personnel to encourage and support them to take up new technology in their plants, eg to encourage them to apply for PIP funding. AMPC may require plant personnel to undertake the e-learning program as part of the contractual requirements for PIP projects.

The e-learning program may be distributed through AMPC and MINTRAC resources. The program may be given or sold to RTOs who may offer the program either individually or in facilitator led groups to gain the '*Design complex projects*' unit of competency, which may be counted as one of the elective units in the Diploma or Advanced Diploma of Meat Processing.

AMPC may sponsor RTO(s) to conduct facilitator led groups of plant personnel to undertake the program in association with encouraging the plants to begin planning for the implementation of new technologies.

## 7.0 Success in achieving objectives

The objective of this project was to develop a training program that equips industry personnel with the skills they need to plan the implementation of an industry R&D initiative in their own enterprise, with the skills gained through participation in small groups in a facilitator led, interactive e-learning module that utilizes e-tivities and networking with individuals in the group and is based on scenarios of industry enterprises implementing R&D initiatives.

An e-learning program has been developed as the final product of this project. The e-learning program takes a systematic approach to the design phase of project management, positioning industry personnel in the best possible position to achieve successful results with the implementation of a new technology in their plants. The e-learning program works through each step in the initiating and planning stages of project management providing participants with the skills they need to develop the project charter or business case for their project and to develop the project implementation plan.

The e-learning program is interactive and includes interviews with an industry project manager throughout the program. Participants in the program build their project management documentation in stages throughout the project. The program has been developed in Adobe Captivate to make the use of the program as flexible as possible. This enables the program to be provided on DVD to individuals and/or provided to RTOs or other consultants to be loaded onto their websites (and forums and wikis hosted) for facilitator led small group sessions that enable networking between participants. AMPC may sponsor the delivery to small groups in association with meat plants interested in PIP projects.

The project charter or business case meets the objectives:

- Assessing their own enterprise priorities, researching the industry R&D products database and matching the initiatives on the database with their own priorities
- Compiling a case for uptake of the R&D initiative in their enterprise.

The project implementation plan meets the objectives:

- Developing a plan for marketing the R&D initiative within their enterprise
- Writing a proposal, eg for an AMPC PIP initiative, government funding or internal financing
- Developing an implementation plan for the initiative based on project management.

The project implementation plan achieves these objectives through its inclusions which are:

- Background to the project
- Project goal
- Project scope
- Product description
- Specifications for the final product of the project
- Reasons for the project
- Advantages and disadvantages of the proposed new technology
- Impacts of the proposed new technology

- Project risk management plan
- Project SMART goals/objectives
- Project success criteria
- Project work plan
- Project budget
- Project cost management plan
- Project change control process
- Project stakeholder analysis
- Project communication or marketing plan.

As set out in the objectives, the program has been developed in compliance with the requirements for the '*Design complex projects*' unit of competency which may be counted as an elective unit in the Diploma or Advanced Diploma of Meat Processing. In order to gain credits for the unit participants would need to

## 8.0 Conclusions

The e-learning program, *'Designing complex projects, an e-learning program for project managers in the meat industry'* provides a resource to meat industry personnel who are considering the adoption of new technologies in their plants. The program gives industry participants the skills to plan the implementation of the new technology in their plants with the outcomes of the program being the business case and project implementation plan for each project. In the process of completing the program industry personnel may also gain one unit in the Diploma or Advanced Diploma of Meat Processing (provided the program is completed with an RTO). The program may be completed by individual users or conducted by say RTOs in facilitator led small groups that enable networking between participants in the group.

## 9.0 Recommendations

### 9.1 E-learning program made available to RTOs and meat industry personnel

The e-learning program needs to be made available to RTOs and meat industry personnel. The program could be made available through the AMPC and MINTRAC website. The program could be offered through MINTRAC as a resource to RTOs for the delivery of the 'Design complex projects' unit of competency which may give a credit towards the Diploma or Advanced Diploma of Meat Processing. The e-learning program may also be promoted through the industry network meetings such as the maintenance engineering network meetings and industry conferences such as the MINTRAC training conference. AMPC may provide the resource to meat industry personnel enquiring about PIP projects or undertaking other projects.

### 9.2 E-learning program promoted and utilised in association with industry projects

The e-learning program aims to encourage meat processing companies to take up R&D initiatives in their own plants. The program aims to support industry personnel through the process of planning the adoption of a new technology in their own plants to help ensure successful outcomes for the project. AMPC and/or MLA could sponsor the facilitated delivery of the program to industry personnel who may be considering installation of new technology and/or who are undertaking a PIP project or considering applying for other funding or grants. AMPC may consider making completion of the program (or submission of a project implementation plan) a condition for funding for PIP projects.

### 9.3 Project management units incorporated into Diploma and Advanced Diploma

The e-learning program has been designed to meet the requirements for the *'Design complex projects'* unit of competency. This unit may be used for a credit in the Diploma or Advanced Diploma of Meat Processing under the current packaging rules for these qualifications. The current packaging rules allow:

*'Two of the six elective units can be selected from a relevant Diploma or Advanced Diploma from this Training Package or any other Training Package or accredited course. Selected units must be relevant to meat industry and must not duplicate units already contained within the qualification.'*

The *'Design complex projects'* unit of competency is one of three units that covers project management. The other two units are *'Manage complex projects'* and *'Close complex projects.'* *'Manage complex projects'* has been incorporated into the Meat Industry Training Package and may be undertaken as one of the six elective units in the package. *'Close complex projects'* may be undertaken in the Diploma or Advanced Diploma as the second unit imported from another Training Package. Alternatively the *'Design'* and *'Close'* units could be incorporated into the Meat Industry Training Package in association with the

review of the Meat Industry Training Package that is currently in progress. This would give more flexibility in the selection of units for the qualification.

#### **9.4 Resource manual for adopting technology**

The e-learning program and the MINTRAC/AMPC '*Resource manual for adopting technology – introducing new equipment in meat processing*' compliment each other. The resource manual may be used as a text book to support the e-learning program.

## 10.0 Bibliography

Coleman, G. Issues relevant to the adoption of technology in the meat processing industry, 2013

MINTRAC, AMPC, BMC. Resource manual for adopting technology – introducing new equipment in meat processing, 2014

Richardson, C. Industry tutorials to update processors on current science relating to meat quality, 2013

Training.gov.au, MTM50111, Diploma of Meat Processing

## 11.0 Appendices

The '*Handbook for participants*' is provided to AMPC as a separate file to retain the formatting for the handbook.