Year One Business Case
Information and Communications Technology (ICT)

Project 1E - Review IT qualifications that may not be fit for purpose

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Project 1F – Review qualifications relating to telecommunications technology that may not be fit for purpose

Version 1.0 – October 2016

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Project 1E – Review IT qualifications that may not be fit for purpose

Part A: Case for Change

This Business Case was established as a result of initial research and consultations outlined in the Four Year Work Plan for the ICT Industry Reference Committee (IRC) and subsequent endorsement by the Australian Industry and Skills Committee (AISC). The ICT IRC has raised questions regarding a number of qualifications that may not be fit for purpose within the ICT Training Package. The purpose of the proposed project is to review the suitability of these training products, and to determine what changes or additions can be made to better meet the needs of industry.

The following qualifications and Units of Competency (UoCs) contained within them are in scope of the proposed project:

- ICT40115 Certificate IV in Information Technology
- ICT40615 Certificate IV in Information Technology Testing
- ICT40715 Certificate IV in Systems Analysis and Design
- ICT50515 Diploma of Database Design and Development
- ICT80215 Graduate Certificate in Information Technology Sustainability

It is anticipated that a Case for Endorsement will be submitted to AISC in November 2017.

Industry drivers of change

This project is proposed in response to industry drivers of change, including:

1. **Rapidly changing technologies** – the rise of automation and/or offshoring of many work activities has led to a decline in 'traditional' IT roles for new workers on completion of vocational qualification(s), for example systems testers.

2. **Tendency toward system focus** – emphasis placed on the customisation and optimisation of off-the-shelf systems which has shifted from the focus on in depth understanding of infrastructure and systems development 'from the ground up.'[1] It is recognised that the need to reflect this shift in training must also be balanced with the need to foster innovation and self-directed learning in future IT workers.[2]

3. **Shifts in the nature of job roles** – employers are expecting learners to be equipped with different knowledge at different levels than is currently provided by training.

4. **Emerging skills gaps** – consistent feedback that workforce entrants in ICT are not as proficient as their equivalents in other industries.

Current state

The Certificate IV in Information Technology, Certificate IV in Information Technology Testing, and Certificate IV in Systems Analysis and Design[3] are considered appropriate for inexperienced individuals seeking entry to the IT workforce. Likely employment outcomes include test assistant, assistant developer, support technician, and analyst roles.

Competition for roles in IT is high in Australia and particularly challenging for VET qualified individuals due to competition with tertiary qualified graduates, the rise of automation of traditionally 'entry level' activities,

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[1] Discussion with ICT IRC member, September 2016.

[2] Submission to SfA from Victoria: Department of Education and Training, October 2016.

[3] ICT40115, ICT40615, ICT40715.

and the impact of offshoring. These challenges are further compounded by employer preference for practical experience, as opposed to formal qualifications. Employer feedback strongly indicated the importance of incorporating a substantial workplace element into the delivery of all qualification in the IT industry. Consultation also revealed that employers in the sector commonly rely on unaccredited, vendor specific training, even where there is comparable nationally recognised training.[4]

The qualifications in scope of this project are often used as pathway qualifications – often to tertiary education – and are commonly undertaken as traineeships.

ICT40115 Certificate IV in Information Technology is considered the key qualification that can be adapted according to an individual's desire to specialise to pursue a specific employment outcome. There are few students and few Registered Training Organisations (RTOs) using the other two qualifications. Further, the overlap between these qualifications is substantial, with the Certificate IV in Information Technology[5] containing many Units relevant for learners considering employment in testing or systems analysis.

ICT50515 Diploma of Database Design and Development contains skills which are considered highly relevant according to industry feedback. However, the importance of holding a specific qualification in order to gain employment in this area was not considered high, with weight being mostly on demonstration of practical skills and experience according to employers.

There is generally low industry and learner awareness of ICT80215 Graduate Certificate in Information Technology Sustainability. Possible occupations include IT sustainability project manager and IT sustainability requirements manager. [6] Seven of the nine UoCs that make up this qualification are included in ICT80115 Graduate Certificate in Information Technology and Strategic Management.

Part B: Issues identified

Learner characteristics are not meeting employer expectations. The importance of effective communication, basic project management and time management has increased, and plays an important role in recruitment decision making.[7] In particular, the need for project management capability was highlighted during industry consultation.[8]

Customer demand for multi-disciplinary skills. As more individuals use more interconnected devices (for example, smart fridges and smart televisions), customer expectations that support technicians will have generalist troubleshooting skills are rising. This creates challenges for specialist support technicians as sending more than one technician is generally impractical due to availability and / or cost reasons.

Relevance for new IT workers in industry. Job roles particularly at more junior levels have changed as a result of offshoring, cloud based computing, user maturity, automation, etc. The shifts in required skills are not currently reflected in the training package.

Some qualifications lack relevance as full qualifications. Due to both significant duplication between qualifications and shifts in skills needs, some qualifications are not delivering on their intended purpose or employment outcomes. The number of qualifications containing similar Units was referred to consistently in the PwC's Skills for Australia (SfA) business case survey as being confusing and unnecessary.

Duplication between Units. Currently there are very specific Units that serve similar purposes in related areas. This results in confusing qualifications and learner decisions, and there is opportunity to streamline some of these Units to reduce duplication of training.

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[4] Discussion with ICT IRC, October 2016.

[5] ICT40115.

[6] Upskilled website, Graduate Certificate in Information Technology ICT80215 https://www.upskilled.edu.au/courses/information-technology/graduate-certificate-in-information-technology-sustainability-ict80215.aspx, accessed 4 October 2016.

[7] Labour Market Research – Information Technology Professions Australia, December 2015, Department of Employment, pg. 2

[8] Discussion with ICT IRC, October 2016.

Industry perspectives

The consultation approach for business cases is designed to build on research and consultations undertaken in development of the Four Year Work Plans. For business cases we have relied on subject matter expertise gained from structured interviews with IRC members and industry representatives to whom we were referred. Experts who were consulted during the development of this business case are detailed in Attachment C.

IRC members, STAs and the Federal Department were invited to review the draft ICT Business Cases via the PwC's Skills for Australia (SfA) online portal. Feedback opened to IRC members from October 10, followed by STAs and the Federal Department from October 13. We received feedback from STAs in Victoria and Western Australia, with some STAs acknowledging receipt of the documents and reserving the right to comment more specifically during the project phase.

More broadly, we published a survey to enable industry participants to provide feedback on key questions relating to training products within the scope of this business case. For proposed project 1E, 34 responses were received and incorporated in this document. The organisations that survey respondents were from are listed in Attachment C.

Feedback received to date has been incorporated into this document as agreed with the ICT IRC.

'Industry' opinion in this document refers to views raised and validated via the consultation approach outlined above. It is acknowledged that additional consultation will be conducted in future project work to confirm that these opinions are largely agreed upon by a broader group of stakeholders and to determine specific changes required to training products.

Part C: Proposed changes to training products

There are several opportunities for improvement that have been identified, as outlined below.

1. **Streamline qualifications not currently fit for purpose**
   Removal of the identified qualifications[9] will reduce overlap in content, particularly of electives, which is currently creating confusion for both employers and learners. Introducing specialist streams as opposed to maintaining full qualifications will better reflect changes in job roles, such as the notable decline in onshore, traditional testing roles.

2. **Refresh Core Units**
   Refreshing Core Units provides the opportunity to address industry feedback relating to the poor work readiness of new workers via modification of content. A more rigorous focus on time management and day to day communication skills will be essential to address the concerns of employers.

3. **Update specialisations and skill sets: Certificate IV in Information Technology**
   Modifying specialisations and skill sets to more closely reflect current job roles will reduce confusion for both learners and employers. The use of skill sets / specialisations will ensure that this qualification is not so broad that it loses relevance, which is particularly important with the introduction of new electives as a result of proposed change (1).

4. **Review content and validate currency / relevance of identified Elective Units**
   The purpose of the review is to validate that each Unit as well as the specific content is relevant and current, and to reduce content duplication. It is recognised that this exercise will be particularly important given proposed change (1) which will result in further extending the already significant number of electives within this qualification.

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[9] ICT40615, ICT40715, ICT80215.

Part D: Total proposed changes to training products (Project 1E)*

Total proposed changes to training products	Number of training products
Existing units of competency to be reviewed	49
New units of competency to be created	5
New qualifications to be created	0
New skill sets / specialisations to be created	2

Part E: Alternative option: the base case

The base case (the 'do nothing') option must be considered as an alternative to the proposed changes in order to enable effective comparison between the two scenarios. This option negates the need for investment in training products, however does not address the current state issues identified. No further reviews would be planned for the training products in scope of this project in the base case scenario. The likely impacts of this option are outlined below.

Current state issue	Likely impact(s) if not addressed
Learner characteristics are not meeting employer expectations	• With no change in the work readiness of individuals completing VET qualifications, it is likely that employer dissatisfaction will continue and job opportunities will decline. • Employers are likely to recruit declining numbers of VET qualified candidates, in particular new or inexperienced workers. • Potential to negatively impact on the perceived value of certain qualifications in the industry • This impact is likely to be exemplified as the impacts of offshoring, automation, and other advancing technologies further reduce demand for certain manual tasks and heighten the importance of team and project management and communication skills.
Some qualifications lack relevance as full qualifications	• Low enrolments likely to lead to an increase in online training to make training delivery to low student numbers viable for RTOs • Low RTO uptake likely to create learner frustrations as courses may be delayed or not run frequently. • Continued uncertainty amongst employers as to the relevance of certain VET qualifications and how they relate to which job roles. One employer commented 'If we don't get this right soon, industry might disengage from formal qualifications entirely.'[10] • This impact is likely to be exemplified as job roles continue to change and the content and structure reflect more traditional roles.
Duplication between Units	• Opportunity to minimise teaching through careful selection of electives to offer, resulting in reduced volume of learning • Completing learners unlikely to meet industry expectations due to insufficient volume of learning. • Declining learner satisfaction. • Employers are likely to recruit declining numbers of VET students due to uncertainties about proficiency. • Potential to negatively impact on the perceived value of certain qualifications in industry.

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[10] Discussion with industry representative, September 2016.

*Given the size and extent of the structural issues in relevant qualifications it is difficult to identify an exact number of units of competency that may need to be reviewed, abolished or developed in this project. We anticipate that through consultations aimed at addressing structural issues it will be necessary to consolidate duplicate or redundant units or parts thereof, or amend content within individual units that is deemed not fit for purpose. The numbers above represent training products that we have been able to identify through the business case development process.

Part F: Sensitivities and risks

One RTO currently delivers the Graduate Certificate in IT Sustainability (though others have it on scope).[11] Stakeholders within this RTO are confident in the value and relevance of the qualification, and believe in its potential to become increasingly important in meeting industry needs.

Concerns were raised as to the suitability of ICT50515 Diploma of Database Design and Development as a Diploma level qualification. A consensus as to whether this qualification is fit for purpose in its current state was not fully established, however industry consultation suggested that the costs / risks of removing this qualification or modifying it to create a lower level qualification (e.g. a Certificate III level) would outweigh the benefits, so no change is proposed in this document.

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[11] ICT80215, Upskilled RTO currently delivers the qualification online.

Project 1F – Review qualifications relating to telecommunications technology that may not be fit for purpose

Part A: Case for change

This Business Case was established as a result of initial research and consultations outlined in the Four Year Work Plan for the ICT Industry Reference Committee (IRC) and subsequent endorsement by the Australian Industry and Skills Committee (AISC). Following the release of version 3.0 of the ICT Training Package it has been identified that qualifications relating to telecommunications technology require review. The objective of the proposed project is to ensure that these qualifications are fit for purpose and support skills needs and job outcomes.

The following qualifications and the Units contained within them are in scope of the proposed project:

- ICT20215 Certificate II in Telecommunications Network Build and Operate
- ICT20315 Certificate II in Telecommunications Technology
- ICT30215 Certificate III in Telecommunications Digital Reception Technology
- ICT30315 Certificate III in Telecommunications Rigging Installation
- ICT30415 Certificate III in Telecommunications Network Build and Operate
- ICT30515 Certificate III in Telecommunications Technology
- ICT41115 Certificate IV in Telecommunications Network Design
- ICT41215 Certificate IV in Telecommunications Engineering Technology

It is anticipated that a Case for Endorsement will be submitted to AISC in February 2017.

Industry drivers of change

This project is proposed in response to concerns with current training, and due to emerging challenges and trends in the telecommunications industry, including:

1. Rapid expansion of the NBN workforce, set to double by 2018[12];
2. Shifts in the workforce, seeing opportunities for small business /sub- contract work rise;
3. Concerns about the current suitability of Core Units and the extent of duplication contained in Elective Units; and
4. General confusion relating to the above qualifications due to breadth of electives, inconsistent entry requirements, and distinct purpose of each qualification given significant overlap.

It is important to note that some issues relating to the above qualifications have been addressed via the proposed changes in Project 1D (creation of new skill sets).

Current state

Certificate II - III qualifications in these areas are primarily undertaken by individuals looking to enter the workforce or who are new starters, often undertaking a traineeship or apprenticeship.' Employers tend to view these qualifications as establishing a base level of foundational knowledge to enable the commencement of work, but find that significant on the job training and coaching is subsequently required.[13]
While there are varied employment outcomes from Certificates II - III in Telecommunications Technology,[14] examples of entry level roles include telecommunications linesworker, cabler, rigger, and telecommunications technician.

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[12] NBN Corporate Plan 2017 – 2020, accessed 28 September 2016.URL: http://www.nbnco.com.au/content/dam/nbnco2/documents/nbn-media-presentation-corporate-plan-2017.pdf.

[13] Discussion with telecommunications employer, October 2016.

[14] ICT20315, ICT30515.

Industry expectations in relation to training highlight the importance of short term duration and directly applicable sets of skills to enable the earliest possible commencement of work.[15] Employers place significant weight on the value of practical work experience, and consultation showed that currently there is some dissatisfaction with the amount of classroom based delivery.

Individuals are unlikely to undertake a Certificate II followed by a Certificate III in Telecommunications Technology. In this context, both contain significant content overlap and tend to have similar outcomes.

Despite the higher level of qualification, the entry requirements to the in-scope Certificate IV qualifications are generally non-existent, or at least not stringent. As a result, entry level workers commonly undertake Certificate IV level qualifications.

Part B: Issues identified

Length of training. A commitment to a full qualification including regular time in the classroom can undermine the value that an inexperienced worker can offer to an employer.

Gaps in current training. As technical deployment work (in particular in relation to the NBN) is completed in rural and remote locations, there is a clear demand for lower level, ongoing maintenance work that needs to be effectively reflected in the Training Package.[16]

*Breadth of qualifications. E*mployers are uncertain about exactly what they can expect a new worker to be competent in based on a full qualification. Depending on the electives selected, two individuals completing the same qualification may have significantly different capabilities.

Unsuitable Core Units. There is significant overlap of Core Units across qualifications, which confuses both learners and employers and undermines the function of lower level qualifications to provide pathways. It has also been identified that, in some instances, Core Units do not align to what employers consider to be core skills in related job roles.

Duplication of electives. The breadth and quantity of electives within the in scope qualifications makes it challenging for learners to select the suitable combination for their own needs. In several instances, duplication has been identified, further confusing what employers are looking for and reducing the consistency of outcomes for individuals on completion of the same qualification. The issue of duplication also poses the risk of enabling learners to complete full qualifications without undertaking the intended volume of learning.[17]

Structure of qualifications. The structure of the qualifications and the way that they work together is a contributing factor to unclear employment outcomes. The lack of stringent entry requirements to Certificate IV qualifications has seen entry level workers undertaking these qualifications, thus confusing the distinction between Certificate IV and Certificate III[18] in this area.

Industry perspectives

The consultation approach for business cases is designed to build on research and consultations undertaken in development of the Four Year Work Plans. For business cases, we have relied on subject matter expertise gained from structured interviews with IRC members and industry representatives to whom we were referred. Experts who were consulted during the development of this business case are detailed in Attachment C.

IRC members, STAs and the Federal Department were invited to review the draft ICT Business Cases via the PwC's Skills for Australia (SfA) online portal. Feedback opened to IRC members from October 10, followed by STAs and the Federal Department from October 13. We received feedback from STAs in Victoria and Western

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[15] Discussion with ICT IRC members, September 2016.

[16] Discussion with ICT IRC members, October 2016.

[17] Discussion with telecommunications organisation representative, October 2016.

[18] Discussion with peak body representative, October 2016.

Australia, with some STAs acknowledging the receipt of the documents and reserving the right to comment more specifically during the project phase.

More broadly, we published a survey to enable industry participants to provide feedback on key questions relating to training products within the scope of this business case. For proposed project 1F, 24 responses were received and their feedback incorporated in this document. The organisations that survey respondents were from are listed in Attachment C.

Feedback received to date has been incorporated into this document as agreed with the ICT IRC.

'Industry' opinion in this document refers to views raised and validated in consultations outlined above. It is acknowledged that additional consultation will be conducted in future project work to confirm that these opinions are largely agreed upon by a broader group of stakeholders and to determine specific changes required to training products.

Part C: Proposed changes to training products

There are several opportunities for improvement that have been identified, as outlined below:

1. **Evaluate and modify Core Units across qualifications**
   Improving the suitability of Core Units has the potential to improve the work readiness of learners by focusing on the skills that industry requires.

2. **Modify identified Elective Units**
   Several specific industry concerns have been raised relating to Elective Units and the resulting impacts to job outcomes and work readiness. Reduction of duplicated content will ensure that time spent training delivers value for employees and employers.

3. **Improve structure of qualifications**
   Introducing some control around entry into Certificate IV qualifications will improve preparedness for supervisory level job roles.

4. **Create skill set (or low level qualification) to support ongoing maintenance work**
   Provides a training option for young workers to enter the industry without technical skills, in an area particularly required in remote locations.

Part D: Total proposed changes to training products (Project 1F)*

Total proposed changes to training products	Number of training products
Existing units of competency to be reviewed	40
New units of competency to be created	5
New qualifications to be created	1
New skill sets to be created	1

*Given the size and extent of the structural issues in relevant qualifications it is difficult to identify an exact number of units of competency that may need to be reviewed, abolished or developed in this project. We anticipate that through consultations aimed at addressing structural issues it will be necessary to consolidate duplicate or redundant units or parts thereof, or amend content within individual units that is deemed not fit for purpose. The numbers above represent training products that we have been able to identify through the business case development process.

Part E: Alternative option: the base case

The base case (the 'do nothing') option must be considered as an alternative to the proposed changes in order to enable effective comparison between the two scenarios. This option negates the need for investment in training products, however does not address the current state issues identified. No further reviews would be planned for the training products in scope of this project in the base case scenario. The likely impacts of this option are outlined below:

Current state issue	Likely impact(s) if not addressed
Breadth of qualifications	• Decline in relevance of qualifications in meeting the needs of industry. • Employers are likely to recruit declining numbers of VET qualified candidates, in particular new or inexperienced workers, due to uncertainties about suitability. • Potential to negatively impact on the perceived value of certain qualifications in the industry.
Unsuitable Core Units	• Limitations as to the usefulness of learning for work readiness. • Risk of loss of technical focus, potential to create skills gaps. • Unclear employment outcomes for learners.
Duplication of electives	• Opportunity to minimise teaching through careful selection of electives to offer, resulting in reduced volume of learning. • Completing learners unlikely to meet industry expectations due to insufficient volume of learning. • Declining learner satisfaction.
Structure of qualifications	• Ongoing confusion for both employers and learners about which qualifications equip learners for which roles. • Value of certain available qualifications undermined as pathway qualifications. • Potential for worsening skills gaps due to qualifications not serving distinct purposes at different levels.

Part F: Sensitivities and risks

While just-in-time training is critical to support short-term skills needs as well as upskilling opportunities, there is a strong appetite to ensure weight is also given to continuous learning as well as opportunities for learners to pursue full qualifications. SfA will place high importance on striking the right balance between short and longer term training, and by working closely alongside industry to provide options that are suitable for both learners and employers.

Some experts consulted were of the opinion that the in scope qualifications could be further consolidated given the degree of overlap between them, and remaining uncertainty that each has a distinct relevance as a full qualification. While this has not been recommended in the currently proposed changes, the potential for this will continue to be considered and discussed throughout the in-depth consultation process.

There is some concern relating to the review of Core Units given the importance of their role in supporting specific NBN needs. While the need for review is supported by this business case, it is acknowledged that any changes arising from the review and the associated impacts will require careful consideration and management.