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Examining the transferability potential of skills developed within the Australian vocational education and training system — support document 2

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This document was produced by the author(s) based on their research for the report *Cross-occupational skill transferability: challenges and opportunities in a changing economy*, and is an added resource for further information. The report is available on NCVER's Portal: <http://www.ncver.edu.au>.

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Executive summary

It is generally acknowledged that an individual's level of skills affects the probability of employment or unemployment during changing economic circumstances and that transferable skills are particularly important (National Quality Council 2010; Skills for Jobs 2013; Sweet 2009). This report is stage two of a three part study aimed at better understanding cross-occupational skills transfer. The research team considers the training architecture of the Australian VET system with a view to examine the extent to which it may facilitate or impede cross-occupational skills transfer. This examination is based on the skills demand profile developed in the first stage of this research project.

This study was developed in two stages and conducted at two levels of analysis. The first stage takes a skills-level analysis and draws upon the European Commission's (EC) skills transferability framework, which categorises skills according to soft, generic hard and specific hard. In this stage training task comparisons were made between six occupations aligned in pairs ranging from very similar to very different occupations. The qualifications and training packages most commonly required for these occupations were then examined to identify the generic hard and specific hard skills within them and determine the skill transferability potential between them. The findings show that while skills transferability is predicated on employability skills, they are not infinitely transferable as commonly presented. This is because their interpretation into the different qualifications is highly specific thus making them generic hard skills or, in some cases, specific hard skills, which can only effectively transfer between closely related occupations. Making decisions about whether a particular skill should be considered generic hard (and thus relatively transferable) or specific hard and not transferable, however, often required subjective judgement highlighting the limitations of this approach.

In the second stage of the study a unit of competency-level analysis was conducted on selected occupations identified in report one. In this stage, the qualifications and training packages associated with these selected occupations were identified and their core units examined for their transferability across other occupations. By focusing on units of competency the research team was able to specify where precise skills, knowledge and performance criteria were shared by different occupations, thus overcoming the subjectivity associated with the EC's skills transferability approach. Drawing upon findings from stage one, the stage two unit of competency-level analysis considered occupations in relation to career clusters who share common skills, knowledge and competencies. Through analysing the sharing of core units of competency between different occupations and occupational clusters the research team was able to identify where occupational mobility was more likely and where the necessity for upskilling and reskilling to achieve a smooth transition from one occupation to another was present. This approach to understanding skills transferability and occupational mobility if developed further to include all occupations as well as elective units of competency could provide a valuable instrument by which employees could compare their skills to an occupation not just within their industry or occupational cluster but also outside their industry/occupational cluster. This would maximise the ability of job seekers to assess all opportunities where levels of transferability exist.

The findings from stages one and two suggest that Australia's training system does facilitate skills transferability at both a skills level and unit of competency level. The level of transferability, however, was determined to be highly variant between occupations, with higher levels of transferability possible between similar types of occupations. This suggests that transferability barriers are more related to skill demand differences between occupations rather than the training system itself. The results of the analysis, however, also indicate that there are barriers within the

design of the training system which are limiting the capacity for effective skills transferability and occupational mobility. There seems to be a large extent of duplication of units of competency developed across more than 1,600 training package qualifications. The research team therefore recommends rationalising units of competency found in a number of qualifications which have different titles but more or less deliver the same knowledge and skills content, and establishing a common language to describe skills and units of competency across skills councils and training packages in order to make them easier to understand across industry boundaries, educational institutions and training bodies, and among policymakers, employers and employees. Without the harmonisation of the language by which competencies are understood and described, students will remain largely unaware of the highly transferable skills they hold. Without a greater sharing of units of competency which deliver similar knowledge and skills across occupations and occupational clusters, transferable skills will remain invisible to the many workers who possess them and need to draw upon them to find alternative employment.

In the final assessment, it was established that there are opportunities for workers located in declining occupations to take up employment opportunities within growing occupations and the Australian training system is designed in ways that facilitates this process, albeit not perfectly.

The project scope and objectives

The overarching objective of the study is to investigate cross-occupational skills transfer. The study is premised on the understanding that in rapidly changing economies where industries are being restructured, cross-occupational mobility is vital for employers and workers to flexibly meet varying employment demands. There is considerable speculation about the degree of skills transferability within the Australian labour market and the facilitators and barriers associated with skills transfer (Mayer Committee 1992; Misko 1998; Patridge, Chapman and O'Neil 2009; Roberts 2011). It is generally acknowledged that an individual's level of skills affects the probability of employment or unemployment during changing economic circumstances (National Quality Council 2010; Skills for Jobs 2013; Sweet 2009). The acquisition of transferable skills is considered particularly important in one's occupational mobility (Curtis & McKenzie 2001; Misko 1999: 1995). For example, research points to occupational mobility being more common among machinery operators and drivers and sales workers, and less common among managers due to differences in transferable skills between these occupations (Sweet 2011).

This study has been developed to build upon the existing significant body of research in this area, but with a specific focus on the enablers and barriers to cross-occupational skills transfer between declining and growing occupations in Australia. It employs a multi-level evidence-based analysis aimed at capturing the complexities and specificities of industrial transformation, skills development and cross-occupational employment mobility, and is guided by three key research questions:

1   What is the skills demand profile in the Australian economy in the prevailing context of economic transformation: which occupations are growing and which ones are declining?

2   To what degree does industry training packages, which underpin the Australian VET system, facilitate and enhance horizontal cross-occupational skills transfer and employment mobility in times of industrial restructuring?

3   Do the experiences of workers in declining occupations and industries who are assisted to acquire work in new occupations reflect the skills transferability potential embedded in the training system?

The data collection and analysis are organised into three integrated stages, which are designed to incrementally address the research questions and comprehensively cover the scope of the study. The first stage involved a secondary analysis of ABS Census, Labour Force, and Labour Mobility data to determine how the Australian economy has changed over the past decade, with specific reference to declining and growing industries and occupations. In this stage we identified declining and growing occupations, as a way of understanding the skills demand profile of the emerging industrial landscape.

The occupations identified in this analysis formed the basis for the current examination, stage two of the study, where we consider the training architecture itself. The aim is to determine the extent to which the VET system facilitates or impedes cross-occupational skills transfer. In examining this question we consider transferability at two different levels of the training system. We begin at the level of skills themselves and the notion that certain types of skills are more transferable than others. We draw upon recent insights and approaches developed by the European Commission on skills transferability to assist us with the analysis at this level. Since Australia's training system is competency-based, we follow on with an examination at the level of units of competency. At this level of analysis we consider if transferability applies to units of competency between occupations and occupational categories thus facilitating occupational mobility. These two levels of analysis

enable the research team to make determinations about how well Australia's training architecture delivers transferable skills opportunities.

In stage three of the study, two case studies will be conducted that will test the findings from stages one and two, to ascertain how and where workers departing from declining occupations and/or threatened industries are likely to acquire work in the emerging occupational landscape. These case studies will consider: (1) if worker experiences in finding new occupations reflect the transferability potential identified in stage two and (2) how the assistance and practices of employers, training providers, unions, job service providers and other government support agencies encourage or impede skills transfer across occupations. The aim of the final stage is to determine the practicality of skills transfer and occupational mobility in the existing skill ecosystem, and to identify the enablers and/or obstacles to the same.

Introduction

Increased industrial restructuring and technological and organisational change over the past three decades has redefined employment for many workers (OECD 2013; Blinder 2006; Burgess 1997; Dicken 2011; Marchington et al 2005). These changes have brought about worker displacement and significant growth in precarious employment and occupational and labour mobility. The 'job for life' has become increasingly rare with many individuals now experiencing multiple jobs and different occupations throughout their working life (Grimshaw et al 2002; Lane 2011; Lindsay 2005; Mitchell, Juniper, & Meyers 2006; National Research Council Committee on Techniques for the Enhancement of Human Performance 1999; Rifkin 1995). It is generally acknowledged that an individual's level of skills affects the probability of employment or unemployment during changing economic circumstances (National Quality Council 2010; Skills for Jobs 2013; Sweet 2009). A 2013 OECD report notes that "most displaced workers who are reemployed find jobs that use similar skills to their pre-displacement jobs, even if they move to a new occupation or industry" (Quinitini & Venn 2013: 9).

The implication of rapidly changing job and labour markets is that transferable skills—those skills which can be drawn upon and adapted to different jobs, occupations and industry settings—are becoming much more important than the technical or occupational specific skills workers have acquired (Misko 1995; 1998; 1999; Partridge, Chapman & O'Neil 2009; Perkins & Salmon 1988). Much of this depends, however, on the level of skills transferability one has acquired and how well one's skills translate from one context to another (Curtis & McKenzie 2001; Misko 1999; 1995).

Within Australia researchers and policy analysts have sought to better understand the facilitators and barriers associated with skills transfer over the years (Mayer Committee 1992; Misko 1998; Patridge, Chapman & O'Neil, 2009; Roberts 2011). It is generally acknowledged that one of the keys to developing transferable skills is design improvements to the training system itself, so that both occupational specific and more generic skills and competencies are developed among employees. Across a range of countries, educationalists and policy makers have re-evaluated their approach to skill formation and recalibrated the balance between 'generic' and occupational specific skills within their training systems (Skills for Jobs 2013; Subedi 2004; Sweet 2009; Warhurst, Grugulis & Keep 2004; Winterton & Haworth 2013). In Australia skills development and accreditation is guided by industry training packages, which provide guidelines on the skills composition for the various formal qualifications awarded (Misko 2010). Transferability, in the current system, is supposedly enhanced by a set of skills built into every training qualification in the form of employability skills (Curtis & McKenzie 2001). The question is how effectively transferable they are and whether they are sufficient to ensure effective employment mobility for workers across occupations.

In this second stage of the research project exploring 'occupational mobility' and 'skills transferability', we examine this question by considering training package guidelines for the corresponding qualifications of the declining and growing occupations identified in stage one of the research. The report begins with a discussion of the conceptual and methodological challenges associated with measuring transferable skills. This is followed by a discussion of our framework which adopts both a skills and competency approach to investigating transferability within the Australian training system. In conducting the skills-level analysis we draw upon some of the insights of the European Commission's (2011) research on skills transferability that categorises skills on a scale of least-to-most transferable. While there are significant challenges in applying this framework for understanding skills transferability within the Australian VET system, we argue it provides a

mechanism to better understand employability skills, how they are operationalised within training packages and their importance for skills transferability. Furthermore, transferability analysis at the skills level provides a mechanism to compare and assess the likelihood of skills transferability between two or more occupations as we demonstrate. The findings from this skills-level analysis led us to conclude that skills transferability and occupational mobility is significantly constrained by the nature and type of occupations compared. These insights inform the second-level of analysis where the focus is on competencies.

In this stage of the research we draw upon studies conducted in the United States which classify occupations according to 'clusters' with similar skills, knowledge and competency requirements. In this part of the analysis we consider if Australia's competency-based training system is designed in ways that facilitate the sharing of common competencies between occupations located within and between occupational clusters. Through examining transferability at both the skills and competency levels we are able to arrive at a better understanding of the occupational mobility prospects within the design of the Australian training architecture, but also recognise to a greater degree the more specific skills and competency relationships between our selected declining and growing occupations.

The report proceeds by first discussing the conceptual challenges and debates surrounding the notion of transferable skills and how they have been generally conceived within the Australian context. This is followed by a consideration of different methodological approaches to investigate transferable skills within training systems, an outline of the particular methods used in this stage of the research, the study's findings, discussion, and concluding comments.

Transferable skills: conceptual and definitional challenges

Conceptually, transferable skills commonly refer to those acquired from training or experience which can be used in multiple job situations and contexts. The degree and manner in which skills may transfer from one context to another is highly variable from positive, negative or zero transfer. Smith (1992) provides the example of the skills required to drive a car to illustrate this point:

> A person trained to drive in an automatic car will have little difficulty in adjusting to drive another automatic. This is a case of high positive transfer of the original training. However, the same driver may encounter considerable problems in dealing with a manual change car which requires a set of different responses, depressing the clutch, changing gear, etc. This would be an example of negative transfer, where the original training on an automatic car intrudes on the driver's ability to learn how to drive a manual vehicle. Learning to drive a car would, of course, have virtually no impact on the driver's ability to ride a bicycle (zero transfer) (p.81).

Within the academic and practitioner literature, however, what constitutes 'transferable skills' is interpreted in a variety of ways as a result of significant ongoing conceptual and definitional differences about what constitutes a 'skill' and the typologies used to categorise them (Attewell 1990; Baum 2002; Esposto 2008; Le Deist & Winterton 2005; Rose 2004; Spenner 1990; Stasz 2001; Warhurst, Grugulis & Keep 2004; Vallas 1990). Transferable skills are often described in a number of ways: 'generic skills', 'soft skills', 'essential skills', 'non-technical skills', 'employability skills', 'key competencies' (Business Council of Australia and the Australian Chamber of Commerce and Industry 2002; Ceci & Ruiz 1993; Curtis & McKenzie 2001; Detterman & Sternberg 1993; European Commission 2011; Mayer Committee 1992; Misko 1995; 1998; 1999; Patridge, Chapman & O'Neil 2009; Subedi 2004). Yet, there is considerable debate on the use of these descriptors and classifications used.

The simplest classifications define skills as either 'technical' or 'non-technical' with 'non-technical' considered highly transferable (e.g. Smith & Teicher 2011). The 'non-technical skills' (such as language skills, maths skills, communication skills, team working skills, etc.) are seen as supporting the application of a wide range of 'technical' or occupational specific skills. The skills transferability classification proposed in the European Commission (2011) study identifies three skills categories, including soft skills, generic hard skills and specific hard skills. In this categorisation, soft skills are non-job-specific and highly transferable, generic hard skills are job-specific but transferable across all occupations, and specific hard skills are strictly job-specific and much less transferable. Stasz (2001), on the other hand, identifies four broad skill areas: academic competence skills (e.g. knowledge about a broad subject area); generic skills (e.g. communication, ability to work in teams and solve problems); technical skills (i.e. occupational specific skills); and work related skills related to employee motivation, attitudes and disposition (Stasz 2001, p.386). For Stasz academic competence, generic and work related skills are considered much more transferable across industries and occupations.

This much broader definition of skill, however, tends to conflate skills, knowledge and attitudes into one which is subject to long standing debate. At the heart of this debate are those who advocate for a clear distinction between the three concepts (e.g. Smith 1992) with skills strictly relating to the functional requirements of a job, while others argue for a more 'holistic approach' which recognises functional/instrumental skills as well as social and cognitive and behavioural traits (e.g. motivation,

honesty, loyalty, enthusiasm, reliability, etc.) related to one's approach to work (see Le Deist & Winterton 2005). In addition to these notable differences in viewpoint there are also differences between those who take the view that transferable skills should only include those related to employment (i.e. occupational capabilities) and those who maintain that other broader societal capabilities related to 'community', 'citizenship' and 'ethical and equal treatment of others' should be included in definitions of transferable skills.

This lack of clarity and a common language to describe and identify 'transferable skills' is generally acknowledged, as are the challenges that this presents for researchers and policy analysts. Reconciling all the different ways the term is used is not possible in this report but it is an area that needs additional consideration as these definitional differences shape how research is conducted and how researchers come to measure and understand transferable skills. For example, if one assumes that 'non-technical' or 'soft' or 'behavioural' attributes are transferable and others are not, findings from a study can be significantly different. Skills and skill development are also highly context dependent. What is considered a 'soft skill' in one setting could be a 'hard skill' in another depending on the type of occupation, industry or level of technological development, and thus becomes of subjective judgement and often gender bias (Darrah 1992; Gatta, Boushey & Applebaum 2009; Winterton 2007; 2012). As Gatta, Boushey and Applebaum (2009) argue, the skills demanded by service employers, where mostly women are employed, are typically considered 'soft skills' (e.g. social skills, communication skills, information technology skills) but the technical competencies associated with emotional labour are 'unfamiliar to many workers in the manufacturing jobs that are declining' (p.985). Before discussing our approach to handling these conceptual and empirical challenges to measuring transferable skills, we now turn to how transferable skills have come to be broadly understood in Australia.

Transferable skills in the Australian context

The current Australian VET system is pillared by three important elements, which were established under the Australian National Training Authority (ANTA) policies. These pillars include the Australian Qualifications Framework (AQF), the Australian Quality Training Framework (ATQF)/Standards for Registered Training Organisations, and Training Packages currently developed by Industry Skills Councils (ISC). The first two pillars deliver guidelines on qualifications and the quality of training and assessment of qualifications, whereas ISCs provide elaborate guidelines on training content and certification through their tailoring of training packages. The significance of the skills councils has been founded on the premise of comprehensive industry engagement and consultation regarding industry skills demand in order to ensure that relevant and appropriate skills are produced by the system. The training packages are therefore revised and updated periodically in order to reflect any changes in industry skills demand. However, the existence and role of Industry Skills Councils is currently under review, with new arrangements expected from 1 January 2016.

There are twelve skills councils altogether representing broadly defined industry clusters, including AgriFood Skills Council, Auto Skills Australia, Community Services and Health Industry Skills Council, Construction and Property Services Industry Skills Council (CPSISC), E-Oz Energy Skills Australia, ForestWorks Industry Skills Council, Government Skills Council, Innovation and Business Skills Australia (IBSA), Manufacturing Skills Australia (MSA), Service Skills Australia, SkillsDMC and Transport and Logistics Industry Skills Council (TLISC).

Under the Australian Qualifications Framework (AQF) (www.aqf.edu.au) there are eight qualification levels, ranging from Certificates to Vocational Graduate Diplomas. As the Australian system assumes that competence is readily measurable through the performance and appraisal of observable behaviour, the eight different levels are defined in terms of 'learning outcomes'. The specified outcomes for the first four Certificate levels, which take the worker up to supervisory status, are as follows:

- **Certificate I** the learner demonstrates a breadth, depth and complexity of knowledge and skills to perform a defined range of routine and predictable activities.

- **Certificate II** expands on this.

- **Certificate III** extends the skills and knowledge to new environments and provides technical advice and some leadership.

- **Certificate IV** introduces a variety of contexts that are complex and non-routine and require some leadership and guidance of others, often regarded as supervisory.

Each qualification requires trainees to successfully complete all specified competencies, which can vary in number depending on the training package, hence the reference to 'competency-based training'. These training packages are fully modularised to allow for considerable flexibility and customisation for employers, training providers and their trainers as well as trainees. Apart from qualifications, the VET system allows students to obtain Skill Sets. These are groupings of units of competency which are combined to provide a clearly defined statement of the skills and knowledge required by an individual to meet industry needs or a licensing or regulatory requirement (ANTA 2007). Although Skill Sets identified and developed within training packages are formally recognised

via a statement of attainment, they are not qualifications, which in itself presents concerns for occupational mobility given that Skill Sets obtained in one industry may not be formally recognised within another. It is for this reason that we focus on qualifications as the unit of analysis for this stage of the research, rather than Skill Sets. That being said, the system is designed to enable a degree of skills transferability, with the intention of creating a flexible workforce capable of productive employment across a wide range of occupations. As highlighted earlier, it is hoped that this will be achieved through a set of 'employability skills' commonly built into every training qualification.

The Australian VET System's categorisation of industry based employability skills

Employability skills within the Australian training context began in the form of key competencies, which were introduced into the training system through the Finn Report (1991) and further refined by the Mayer Committee (1992). The Mayer report established guiding principles for conceptualising generic skills that could be embedded into the training system and applied across all employment contexts. They were designated as essential preparation for employment and were thus designed to be more generic to work rather than specific to any industry or occupation. The idea was to equip individuals with the ability to effectively participate in a number of settings including social and work life.

In 2002, an employability skills framework was proposed jointly by the Australian Chamber of Commerce and Industry (ACCI) and the Business Council of Australia (BCI) through the Employability Skills for the Future report. Following the endorsement of the framework in 2005, the identified employability skills (see table 1) have, from 2006 onwards, been introduced in the system and replaced the key competencies (National VET Content 2013). They are embedded into the architecture of the training packages in such a way that they form an essential part of VET training performance requirements. There are eight skills in all, including:

- Communication
- Teamwork
- Problem solving
- Initiative and enterprise
- Planning and organising
- Self-management
- Learning
- Technology.

In order to facilitate a degree of occupational specificity, they allow for customisation to specific industry skill requirements. Through a survey of employer perception of employability skills, the National VET Content (2013) report further demonstrated how employability skills can be interpreted for particular occupational and industry contexts by sets of facets. The facets listed in the report are the aspects of the employability skills that the sample of employers surveyed identified as being important work skills. Employers saw these facets as being dependent both in their nature and priority on an enterprise's business activity.

The following table contains the employability skills facets identified in the report *Employability Skills for the Future*.

Table 1   Employability Skills

Employability Skill	Facets
Communication that contributes to productive and harmonious relations across employees and customers	- Listening and understanding - Speaking clearly and directly - Writing to the needs of the audience - Negotiating responsively - Reading independently - Empathising - Using numeracy effectively - Understanding the needs of internal and external customers - Persuading effectively - Establishing and using networks - Being assertive - Sharing information - Speaking and writing in languages other than English
Teamwork that contributes to productive working relationships and outcomes	- Working across different ages irrespective of gender, race, religion or political persuasion - Working as an individual and as a member of a team - Knowing how to define a role as part of the team - Applying teamwork to a range of situations, e.g. futures planning and crisis problem solving - Identifying the strengths of team members - Coaching and mentoring skills, including giving feedback
Problem solving that contributes to productive outcomes	- Developing creative, innovative and practical solutions - Showing independence and initiative in identifying and solving problems - Solving problems in teams - Applying a range of strategies to problem solving - Using mathematics, including budgeting and financial management to solve problems - Applying problem-solving strategies across a range of areas - Testing assumptions, taking into account the context of data and circumstances - Resolving customer concerns in relation to complex project issues
Initiative and enterprise that contribute to innovative outcomes	- Adapting to new situations - Developing a strategic, creative and long-term vision - Being creative - Identifying opportunities not obvious to others - Translating ideas into action - Generating a range of options - Initiating innovative solutions
Planning and organising that contribute to long and short-term strategic planning	- Managing time and priorities – setting time lines, coordinating tasks for self and with others - Being resourceful - Taking initiative and making decisions - Adapting resource allocations to cope with contingencies - Establishing clear project goals and deliverables - Allocating people and other resources to tasks - Planning the use of resources, including time management - Participating in continuous improvement and planning processes - Developing a vision and a proactive plan to accompany it - Predicting – weighing up risk, evaluating alternatives and applying evaluation criteria - Collecting, analysing and organising information - Understanding basic business systems and their relationships
Self-management that contributes to employee satisfaction and growth	- Having a personal vision and goals - Evaluating and monitoring own performance - Having knowledge and confidence in own ideas and visions - Articulating own ideas and visions

	▪ taking responsibility
Learning that contributes to ongoing improvement and expansion in employee and company operations and outcomes	▪ Managing own learning ▪ Contributing to the learning community at the workplace ▪ Using a range of mediums to learn – mentoring, peer support and networking, IT and courses ▪ Applying learning to technical issues (e.g. learning about products) and people issues (e.g. interpersonal and cultural aspects of work) ▪ Having enthusiasm for ongoing learning ▪ Being willing to learn in any setting – on and off the job ▪ Being open to new ideas and techniques ▪ Being prepared to invest time and effort in learning new skills ▪ Acknowledging the need to learn in order to accommodate change
Technology that contributes to the effective carrying out of tasks	▪ Having a range of basic IT skills ▪ Applying IT as a management tool ▪ Using IT to organise data ▪ Being willing to learn new IT skills ▪ Having the OHS knowledge to apply technology ▪ Having the appropriate physical capacity

Source: National VET Content 2013

Different Skills Councils have interpreted the employability skills into their training packages differently. However, they are generally embedded in such a way that they underpin the assessment of one's training outcomes and the ability to perform at the specific certification level. For example in the training structure for Certificate II Warehousing Operations, the employability skill 'communication' is embedded as follows:

Table 2   Communication skills embedded in Certificate II Warehousing Operations

Employability Skill	Industry /enterprise requirements for this qualification include
Communication	▪ Use communication systems and procedures required for warehousing operations ▪ Read and interpret relevant regulations, instructions, signs and labels applicable to warehousing operations ▪ Speak clearly and directly on matters related to warehousing operations ▪ Write documents as part of duties, including completion of relevant forms and incident reports ▪ Negotiate complex issues with others in the course of warehousing operations ▪ Recognise and interpret non-verbal signs, signals and behaviour ▪ Use relevant communication equipment.

Source: National VET Register, Certificate II in Warehousing Operations

Mayer's (1992, p.ix) key competency skills were developed with the intention of enabling effective 'participation in the emerging patterns of work and work organisation'. The transferability of key competences across different employment settings was suggested in their branding as generic and non-employment context specific. However the question of transferability has been cause for much academic debate since (Misko 1995 &1998; Curtis and McKenzie, 2001; Subedi, 2004). The subsequent translation of the same into employability skills makes more explicit the intention for transferability by presenting them as 'generic' skills, which confer employability across many jobs to those who can demonstrate possession.

This assumption, is however contentious. Bringing together the arguments of Ceci and Ruiz (1993) and Detterman (1993), Misko contends that "there is no guarantee that being able to perform a skill in one context always means being able to transfer the skill to another context" (1998 p.298). Effective transferability ultimately depends on how the skills have been interpreted into the qualification. In

the current VET system characterised by strong industry determination of the nature of skills produced and a training system with clearly demarcated training territories overseen by industry dominated Skills Councils, the translation of employability skills as truly generic is debatable. In line with recent research into the failures of the Employability Skills Framework (Hutchinson 2012), the findings from this study suggest that the situation is far more complex and context dependent, pointing to the possible need for employability skills to be reconceptualised. Hutchinson (2012) provides an alternative in the Core Skills for Work framework, which was "designed to make more clear and explicit a set of non-technical skills and knowledge that underpin successful participation in work", organising these skills into three clusters relating to: (1) Navigat[ing] the world of work, (2) Interacting with others, and (3) Get[ting] the work done (3-6). The situation is further complicated by an increasingly market-driven 'user-choice' training system comprising of many privately owned Registered Training Organisations (RTO) and employer operated Enterprise Training Organisations (ETO), with wide discretion on whether and how to apply training packages. Through these institutions employers have increasingly sought to develop narrowly defined Skill Sets, yet still manage to convince training standards authorities regarding the incorporation of employability skills in their training (see Gekara, Snell, Chhetri and Manzoni, 2014 for a discussion on the skills quality implications of these practices). While these issues are not specifically explored in this report they will be a consideration in stage three of the project.

The construction of employability skills has changed over the years since the Mayer report because of this wide discretion. From a situation where they were explicitly written into the qualification training structures as key competencies/units, they are now mostly implicitly constructed and mostly assessed as training outcomes as opposed to explicit process inputs. Invariably training providers are only required to produce an assessment matrix showing coverage of all employability skills. Thus, whether or not trainees have actually been training on these skills, they are assumed to have covered them by virtue of their certification. Therefore, although transferability of these employability skills is a core intention of the system, whether or not, in reality, qualification holders are able to apply them in different work contexts across industries and occupations, should, as Misko points out, not be taken for granted.

Research approach and methodological challenges

The issues raised by Misko and others present significant methodological challenges for understanding skills transferability. Methodological approaches to measuring and evaluating skills, skills utilisation and skills transferability tend to take either a sociological/political economy approach (Gatta, Boushey and Applebum, 2009; OECD, 2010; Smith and Teicher, 2011; Stasz, 2001) or an economic/positivist one. Sociological/political economy approaches view skills as the product of social and material processes involving institutional influences and a range of actors including education and training providers, skills councils, employers, trade unions and trainees (Lloyd and Payne 2002). Assumptions about skills are not value neutral but socially constructed by these principal actors as they pursue particular objectives and vested interests. Analysis, therefore, requires attention to not only what is occurring within industries and between employers and employees but must be extended to consider changes that are occurring within the education and training sector and how skills and qualifications are developed, delivered and maintained. The role of government regulations and education policy in influencing these outcomes becomes an additional focal point for researchers adopting a political economy approach (Finegold 1999; Buchannan, Schofield and Briggs, 2001; Gekara, Snell and Chhetri 2014; Lloyd & Payne 2002). Questions about skills transferability, therefore, must be understood in relation to the specific socio-economic contexts in which skills are developed and evaluated and the different frameworks through which 'skills' are interpreted and understood (Smith & Teicher 2011). In stage three of the research we draw upon these sociological/political economy approaches to explore the sorts of questions raised by Misko through two qualitative case studies.

In this second stage of the research, however, we take a much more economic/positivist approach to investigate skills transferability within the Australian training system. Here the focus is not what happens in practice but what the training system's design facilitates and/or intends to deliver when it comes to developing transferable skills. In this regard we take the economic/positivist approach which views 'skills as an unproblematic, measurable 'quantity' (Smith & Teicher 2009, p.6) with an 'objective character independent of the observer' (Stasz 2001, p.387). Such an approach often classifies skills into discrete categories (e.g. soft, generic, hard) and use employer/ employees survey instruments to measure and categorise specific tasks and skills required for performing a job (e.g. mathematical and written language requirements, level of interaction and communication with other people, tool and machinery use, etc.) and the educational and training requirements needed. These 'skill' assessments are often used to develop occupational job descriptions, job training and certification programs. As noted by Korczynski (2005) and Gatta, Boushey and Applebaum (2009) educationalists and policymakers tend to privilege this approach as it enables them to categorise skills, measure numerical training and labour market outcomes and align training and skills development with labour market demand and productivity objectives.

In this report we take a two stage, two level analysis to examine skills transferability within the Australian training system. The first stage adopts a skills-level analysis and compares the skills profiles of selected declining and growing occupations located in similar skill levels identified in report one. These skills profiles are developed through a process of investigating the training packages and qualifications which are most commonly required to work in these selected occupations. Both core and elective units of competency for these qualifications are scrutinised to identify the required skills

for these qualifications. A process of identifying transferable skills is then undertaken by drawing upon the European Commission's transferable skills framework which is discussed further in the introduction to stage one findings. Although it is quite possible to use this framework to designate the skills developed through qualifications on a scale of least-to-most transferable, and make a judgement about their transferability potential, one of the aims of this research project is to examine where displaced workers in declining occupations in Australia could use their skills in growing occupations. While the latter approach presents a great opportunity for further study, the objectives of this research necessitate a cross occupation comparative analysis of skills profiles. Thus we compared six pairs of occupations (three declining and three growing) identified in the first stage of the study. In this analysis the EU framework provides the foundation for our initial understanding of skill-types and their *prima facie* transferability potential.

The first two comparisons include similar occupations while the last one includes dissimilar occupations. This stage of the research enables the research team to further examine Australia's employability skills framework as well as better understand the relationship between skills and specific declining and growing occupations and confirm the degree of skill similarity between closely related and unrelated occupations. Findings from stage one inform our approach to conceptualising occupational-based skills in stage two. In stage two of the analysis we further examine the training architecture through a consideration of its competency-based design. Australia's training system is based on the notion of competency profiling. The competency profile provides a snapshot of the competencies required of a competent worker to perform in a particular occupation. Skills and knowledge required to perform a job are analysed and broken down into individual tasks and their constituent skill elements which become units of competencies. This information is transformed into performance objectives which are the basis of the training program design (Smith 1992). The training programs are modularised through the provision of core and elective units of competency which enables trainees and employers the flexibility to account for individual, occupational and work related variations in skill requirements. Theoretically, such a modularised system should also enable different occupations to share common units of competency if there are common skills requirements between them and thus facilitate skills transferability more easily. In this second stage analysis we investigate this question by examining the core units of competencies for the qualifications of selected declining and growing occupations and the degree to which they are shared between and beyond similar occupations. For example, are the core units of competency expected for a wood machinist common to only that occupation or do other occupations also draw upon those competencies? And if so, how similar are the occupations which share these competencies?

In examining this question, and as a result of the findings in stage one, we conduct our unit of competency analysis within an occupational-cluster framework which is discussed further in the stage two findings section. By locating our selected occupations, their qualification and core competencies within occupational clusters we are able to identify if core units of competency are shared solely within occupational clusters or if there are common skills requirements with occupations located in very different occupations. This level of analysis assists in our understanding of where skills transferability and occupational mobility is most probable and if some occupations and clusters lend themselves to higher degrees of transferability than others.

A couple of additional comments about this second-stage analysis are necessary. First, we acknowledge that units of competency are not a perfect proxy for skills for they also contain knowledge, attributes and performance criteria. In addition, a unit of competency is often not easily defined as either developing soft, generic hard or specific hard skills because elements of all three are often contained within one unit. However, by taking a unit of competency approach it becomes

possible to identify where competencies are shared by occupations and become a more precise measure of skills transferability opportunities within the Australian training context. This is not to suggest that simply because two occupations share a common unit of competency, occupational mobility between these two occupations is going to be straightforward or easy; although it should be more feasible than between occupations where this does not occur. However, one of the limitations of this approach may be seen in the analysis of qualifications which are not all structured in the same way, as some only cover one job role, while others develop skills for ten separate job roles which are merely expressed as electives within a qualification. Additionally, in the second stage of analysis we have only mapped core competencies of the selected occupations/qualifications as these are considered the most critical competencies for these occupations. In order to extend the analysis, electives would also need to be mapped. However, this is not an easy or straightforward exercise as some qualifications have over one hundred electives. Decisions regarding elective selection of a particular trainee are influenced by a range factors including what is on offer by the RTO and employer and trainee preferences. In this report we highlight how elective selection can have significant implications for skills transferability as some electives are often designed to develop either generic hard skills or specific hard skills. These arguments will be further demonstrated in the final report where the research team will further consider the role of electives in shaping skills transferability outcomes, via the use of VOCSTATS to identify and examine the most commonly subscribed electives of selected qualifications.

For both stages one and two, identification of qualifications that most commonly correspond to our selected occupations was established through consulting the national register for VET website (training.gov.au). This website lists information on each Australian VET training package and qualification, and allows for the search of corresponding qualifications for most ANZSCO identified coded occupations at the 6-digit level. Since many occupations were identified at the 4-digit level in report one, these occupations needed to be narrowed to the 6-digit level for further analysis at this stage of the research. To do this, each 4-digit occupation and its 6-digit specialisations were identified on the ABS website (abs.gov.au). If the 4-digit occupation was identical at the 6-digit level, this occupation was used. If several corresponding 6-digit occupation specialisations were identified, each one was searched on the register for a corresponding qualification. In some instances, not all of the occupations had corresponding qualifications. If only one narrowed occupation had a corresponding qualification, this would be the one selected for further analysis. If many of the 6-digit occupations had a corresponding qualification, another method of reduction was performed, by limiting the qualifications chosen to those that were at the appropriate ANZSCO skill level. For example, if ANZSCO categorised the occupation at skill level 4, but was listed at Certificate IV level on the register (i.e., a qualification too high for the identified skill level), this qualification would be excluded from the analysis. The corresponding skill and qualification levels used are as follows: Skill Level 1: Diploma level and above; Skill Level 2: Certificate IV to Diploma level; Skill Level 3: Certificate III to IV; Skill Level 4, Certificate II to III; Skill Level 5: Certificate I to II.

The following discussion presents the findings from stage one and stage two of the analysis.

Findings

Stage one: skill level analysis of transferability using the European Commission's framework

In this stage of the research we consider the transferable skills of six occupations identified in report one. In conceptualising and categorising 'transferable' skills we draw upon The European Commission's (EC) *Transferability of Skills across Economic Sectors Report* (2013). The study begins by distinguishing, specifying, and coding three categories of skills on the basis of previous analysis:

- **Soft skills:** non-job specific skills that are related to individual ability to operate effectively in the workplace. These skills are usually described as perfectly transferable. The five clusters of soft skills identified were: Personal effectiveness skills; Relationship and service skills; Impact and influence skills; Achievement skills; and Cognitive skills.

- **Generic hard skills:** these are technical and job-specific abilities which can be applied effectively in almost all jobs in a majority of companies, occupations and sectors and in personal life and are thus perceived as highly transferable. Six generic hard skills were defined: Legislative and regulatory awareness; Economic awareness; Basic skills in science and technology; Environmental awareness; ICT skills/E-skills; Communication in foreign languages.

- **Specific hard skills:** these are technical and job-specific abilities that are applicable in a small number of companies, occupations and sectors. They describe special attributes for performing an occupation in practice.

It is maintained that "specific hard skills are characterised by their lower level of transferability, whereas soft skills and generic hard skills are skills with high transferability across sectors and occupations" (p.9). These assumptions are presented in the following triple occupational diagram as a way of clarification:

Figure 1   Disposition of soft, generic hard and specific hard skills in occupations
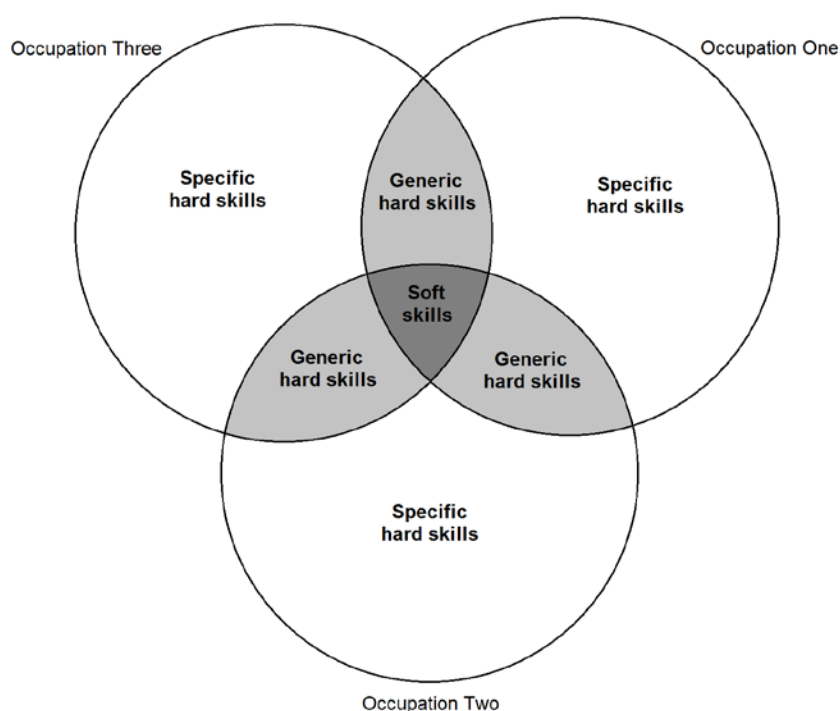
Figure 1 illustrates the transferability potential of the EC's skills categories. It shows that both soft and generic hard skills cut across all three occupations. The difference between the two however is that the former are non-job specific whereas the latter are job-specific. Specific hard skills on the other hand are more exclusive to one occupation.

According to the EC skills transferability framework "skills which are transferable across the economy", i.e. skills applicable to different occupations in different sectors, can be classified most accurately under the "transversal skills" heading. According to the EC, transversal, rather than transferable skills, should be used as a "higher category term which designates and groups together soft skills and generic hard skills which are, by nature, transferable across all sectors and occupations and have an important impact on success in life" (European Commission 2013, p.14).

Tables 3 and 4 shows the transversal skills in the soft and generic hard category identified by the European Commission:

Table 3   Transversal skills, Soft

Skill category	Skill cluster	Specific skills
Soft skills	*Personal effectiveness*	▪ Self-control and stress resistance ▪ Self-confidence ▪ Flexibility ▪ Creativity ▪ Lifelong learning
	Relationship and service	▪ Interpersonal understanding ▪ Customer orientation ▪ Cooperation with others ▪ Communication
	Impact and influence	▪ Impact/influence ▪ Organisation awareness ▪ Leadership ▪ Developing others
	Achievement skills	▪ Achievement orientation, efficiency ▪ Concern for order, quality, accuracy ▪ Initiative, proactive approach ▪ Problem solving ▪ Planning and organisation ▪ Information exploring and managing ▪ Autonomy
	Cognitive skills	▪ Analytical thinking ▪ Conceptual thinking

Source: European Commission 2013a, Appendix, pg.167-172.

Table 4   Transversal skills, Generic hard

Skill category	Skill	Description
Generic hard skills	*Legislative and regulatory awareness*	Legislative and regulatory awareness is the ability to understand basic legislative terms and acts and the ability to apply it in order to solve a range of problems in an everyday situations.
	Economic awareness	Economic awareness is the ability to understand basic economic terms and concepts like for instance taxes, insurance, bank account, debts, loans, etc. and the ability to apply it in order to solve a range of problems in everyday situations. A necessary knowledge in economics includes also basic mathematical skills.
	Basic skills in science and technology	Skills in science refer to the ability and willingness to use the body of knowledge and methodology employed to explain the natural world, in order to identify questions and to draw evidence-based conclusions. Competence in technology is viewed as the application of that knowledge and methodology in response to perceived human wants or needs. Skills in science and technology involve an understanding of the changes caused by human activity and responsibility as an individual citizen. It includes also the ability to understand, use and reflect on written texts as well as ability to handle numbers and other mathematical concepts in order to achieve one's goals and to develop one's knowledge and potential.
	Environmental awareness	These skills should enable individuals to better understand the human advances and its impact on the natural world. It should motivate individuals to be interested in our planet and environment protection and to improve our life. These skills have an increasing importance in the coming era of "low-carbon economy".
	ICT skills	These skills involve the confident and critical use of Information Society Technology (IST) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet. This includes knowledge of main computer applications, communication via electronic media and interconnection ICT tools.
	Foreign language skills	Communication in foreign languages broadly shares the main skill dimensions of communication in the mother tongue. It is based on the ability to understand, express and interpret concepts, thoughts, feelings, facts and opinions in both oral and written form in an appropriate range of societal and cultural contexts according one's wants or needs. Ability to use foreign languages requires knowledge of vocabulary, functional grammar and an awareness of the main types of verbal interaction and registers of language.

Source: European Commission 2013a, Appendix, p.173.

In the Australian VET context the equivalent of the EU transversal skills is a combination of foundations skills, i.e. learning, numeracy, oral communication, reading and writing skills, and the eight key employability skills.

This transversal typology was applied by the EC to over 200 occupations across 10 EU countries where Labour Force Survey data is collected and can be analysed for these purposes. The skills profiles assembled for each occupation described the skills required for job performance, and were developed in a "T-Shape style" combining transversal skills and job specific skills. These occupational skills profiles provided the main input for analysing transferability of skills by the EC, "since they enable a comparison of the skills requirements in different occupations and sectors" (p.39). An example of one such profile (Plumber) is presented below:

Table 5   European Commission categorisation of skills for occupation of Plumber

Civil engineering and construction sector

Plumber	*Generic hard skills*	▪ Basic competencies in science and technology
	Specific hard skills	▪ Orientation in technical documentation ▪ Appraisal and control of quality of raw materials, semi products and products ▪ Technical drawing ▪ Waste disposal ▪ Handling of machines for metal processing ▪ Control measurements in operational and manufacturing processes ▪ Maintenance of buildings ▪ Elaborating of project documents ▪ Installation, operation, maintenance and optimising of energy equipment ▪ Mounting, compounding and installation of piping
	Soft skills	▪ Co-operation with others ▪ Communication ▪ Achievement orientation, efficiency ▪ Concern for order, quality and accuracy ▪ Problem solving ▪ Autonomy ▪ Analytical thinking

Source: European Commission 2013, Transferability of skills across economic sectors by European Commission, p.11.

The EC's skills classification has some utility in understanding the skills transferability potential of different occupations. It can provide a mechanism, for example, to identify the most suitable occupation for a retrenched worker where they can apply most of their present skills, thus minimising losses of qualification and the cost and time of training new employees. It also enables a determination of the necessity for up-skilling and re-skilling to achieve a smooth transition for workers made redundant. This methodology, however, has notable limitations which are also acknowledged by the EC's project team. One of those limitations lies in its comparison of occupations only within the same sector. In this sense the analysis inhibits employees from comparing their skills to an occupation outside their industry, in effect limiting their ability to assess all of their job opportunities. Furthermore, in the event of the downturn of an entire sector, the findings of the analysis would be unable to assist impacted workers.

Another major limitation relates to the EC's assumptions about the transferability of 'soft' and 'generic hard' skills and how determinations are made about what constitutes a 'soft' versus a 'generic hard' versus a 'specific hard' skill when often the boundaries between these distinctions are highly fluid, gendered, and open to subjective judgement and other biases as noted earlier. Depending upon the assumptions and interpretations made about certain skills required to perform tasks and how they are categorised, one's understanding of skills transferability for occupations can be significantly different. As highlighted in the example of Plumbers above, the description of generic hard and specific hard skills become highly generalised when seeking to synthesise a diverse range of occupational skills. These general skills statements gloss over the nuanced differences in skills between occupations which often limit transferability and occupational mobility. In addition, the EC's approach does not acknowledge how specific contexts (e.g. national, industry, organisational, occupational, etc.) have a major bearing on skills development, transferability and occupational mobility (Darrah 1992; Misko 1999; LeDeist & Winterton 2005).

Despite these limitations the EC's skills transferability framework has heuristic value in understanding transferable skills in the Australian training system. As highlighted earlier, the skills transferability

intention in the Australian VET system is achieved through the embedment of employability skills in all training qualifications. The EC framework for transferability suggests that if we look at soft, generic hard and specific hard skills in a continuum, the degree of transferability grows greater at the soft end of the scale. We draw upon this approach to analyse selected pairs of occupations. According to the EC framework, soft skills are non-work related and generally applicable across work/life situations. In our analysis these skills are assumed to be part and parcel of the VET system and the essential knowledge and skills taught to students throughout their educational experience. Our analysis therefore begins with the eight key employability skills (National VET Register), accepting that, based on their inclusion in all qualifications, they form the large majority of the generic hard skill category which the EU defines as those that are applicable to all work and employment settings. Thus, for example the ability to communicate effectively in the workplace is a skill that is essential in all workplaces and employment contexts and therefore identified as a generic hard skill. The same applies to those referring to teamwork, work organisation and workplace safety consciousness. In our analysis therefore, we presuppose that all training qualifications across all occupations contain the same generic hard skills, albeit with varying interpretation and adaptation to different workplaces (see table 1). Specific hard skills, on the other hand are either non-transferable or only transferable across a limited number of occupations. Thus, the skill for catching and positioning animals for shearing is highly specific to Shearers, while preparing and cooking food is highly specific to Chefs. Similarly, to read, interpret and communicate production schedules is a skill listed for Wood Machinists that can only be applied across a wide range of jobs in Manufacturing, thus making it a specific hard skill shared among a limited number of occupations.

In the following analysis we use this understanding to examine the degree of transferability across three pairs of occupations within skill level three, ranging from closely related to totally distant and unrelated. Distance between occupations for the purpose of this analysis can be determined by common training package, different training packages but common job role and tasks and no commonality in terms of training package or job role and tasks. Each comparison involves the analysis of a declining and growing occupation, and builds on the assumption that a high level of transferability will be observed in the first set of relationships, which will decrease across the remaining two, so that very little, if any, transferability will be observed between occupations in the third space.

Comparison of highly similar occupations

Following the assumption that skills transferability is greater the closer two occupations are to each other in terms of job roles and task composition, this section compares occupations which are deemed to share great commonality—Secretaries and Personal Assistants. These two occupations were identified in report one of this project, and represent growing (Personal Assistants) and declining (Secretaries) occupations.

These two occupations utilise the same training package and share common qualifications: Certificate III in Business Administration—albeit Personal Assistants could potentially undertake a Certificate IV in Business Administration instead. From a training package perspective, the variation in skills profile of the two occupations is solely on the basis of elective selection—11 of the 13 units of competency contained in the Certificate III are electives (or whether an employee is expected to have a certificate IV as opposed to a Certificate III).

To begin with, table 6 below shows great similarity in the ANZSCO description of tasks between the two:

Table 6   Tasks required to be performed by Secretaries and Personal Assistants

Secretaries (4 and 6-digit) (Declining)	Personal Assistants (4 and 6-digit) (Growing)
Secretaries perform secretarial, clerical, and other administrative tasks in support of Managers and Professionals	Personal Assistants perform liaison, coordination and organisational tasks in support of Managers and Professionals.
Tasks include: - liaising with other staff to arrange meetings, and to gain and provide information - preparing reports, briefing notes and correspondence, and proofreading work for typographical and grammatical errors - maintaining appointment diaries and making travel arrangements - processing incoming and outgoing mail, filing correspondence and maintaining records - answering telephone calls, responding to inquiries and redirecting callers - taking and transcribing dictation of letters and other documents - greeting visitors, ascertaining nature of business and directing visitors to appropriate persons - may implement management decisions and maintain records of meetings - may handle bookkeeping and petty cash functions	*Tasks include:* - liaising with other staff on matters relating to the organisation's operations - researching and preparing reports, briefing notes, memoranda, correspondence and other routine documents - maintaining confidential files and documents - attending meetings and acting as secretary as required - maintaining appointment diaries and making travel arrangements - processing incoming and outgoing mail, filing correspondence and maintaining records - screening telephone calls and answering inquiries - taking and transcribing dictation of letters and other documents - may supervise other secretarial and clerical staff

Source: ABS 2009.

Based on the great similarity between the two identified occupations, table 7 simply lists the key generic hard and specific hard skills that are developed for both. Unlike other occupations which we analyse we do not make any comparisons here because of the great overlap in the skills developed.

Table 7   Generic hard and specific hard skills identified in Certificate III Business Administration

Generic hard skills

- maintaining continuous learning by seeking out opportunities for improvement and developing new skills (L)
- seeking assistance and expert advice (L)
- communicating sensitively in a cross-cultural context (C)
- writing to audience needs (C)
- communicating with people who speak languages other than English (C)
- working with diverse individuals and groups (T)
- taking action to resolve concerns (PS)
- taking personal responsibility at the appropriate level (SM)
- clearly communicating workplace information to others (verbal and non-verbal) (C)
- communicating with colleagues and clients to handle verbal enquiries such as clarifying instructions and responding to requests for information (C)
- interpreting needs of clients (internal or external) (C)
- applying knowledge of own role to complete activities efficiently to support team activities and tasks (T)
- adapting to new and emerging situations in the workplace (IE)
- being proactive and creative in responding to workplace problems, changes and challenges (IE)
- allocating resources to workplace tasks and requirements (PO)
- identifying risk factors and taking action to minimise risk (PO)
- projecting a professional image when representing the organisation (SM)
- setting own work program and managing time to ensure tasks are done on time (SM)
- following workplace documentation such as codes of practice or operating procedures (SM)
- interpreting the needs of customers (C)
- reading and interpreting workplace related documentation(C)
- working in a team of people to provide office administration services (T)
- developing practical responses to common breakdowns in workplace systems and procedures (PS)
- rectifying discrepancies or errors in documentation and transactions (PS)
- collecting, analysing and organising workplace data (PO)
- organising meeting schedules for clients and colleagues and negotiating alternative arrangements (PO)
- planning for contingencies (PO)
- planning information and documentation requirements (PO)
- utilising or determining required resources (PO)
- working ethically when dealing with financial transactions (SM)
- using business related technology safely (OHS) (T)
- using business technology such as software programs for word processing, spreadsheets, presentation and scheduling (T)

Specific hard skills

- problem-solving skills to address inconsistencies or errors in text
- memory retention skills to accurately capture information
- proofread and edit work for accuracy against original
- time management skills to allow realistic time-lines to schedule appointments
- edit and proofread texts to ensure clarity of meaning and accuracy of grammar and punctuation
- prepare general information and papers according to target audience
- communication skills to negotiate e-work agreement
- write cheque or salary authorisations
- prepare pay advice slips
- numeracy skills to perform calculations and to reconcile figures
- problem-solving skills to reconcile figures and to resolve employee enquiries within scope of own responsibility
- communication skills to provide information to relevant personnel about intellectual property
- problem solving skills to identify intellectual property compliance issues
- literacy skills to read and understand financial procedures
- problem-solving skills to use approximation to check for discrepancies and ensure calculations are correct
- technology skills to display information in a format suitable to the target audience
- problem-solving skills to deal with information which is contradictory, ambiguous, inconsistent or inadequate
- analytical skills to classify and report information and use knowledge management systems
- problem-solving skills to determine document design and production processes

Employability skills categorisation: (C) = Communication, (TW) = Teamwork, (PS) = Problem-solving, (IE) = Initiative and Enterprise, (PO) = Planning and Organising, (SM) = Self-management, (L) = Learning, (T) = Technology. Source: National VET Register.

Given that these occupations perform very similar tasks, employ much of the same skills, and have the same corresponding qualifications, skills transferability and occupational mobility between them is likely to be very high, which suggests that Secretaries should be able to easily fit into the role of a

Personal Assistant and vice versa, although some on-the-job training might be necessary for the purpose of workplace familiarity. Drawing upon our previous skills diagram, the number of generic and specific hard skills shared between these two occupations would be high. The only variation would be that Personal Assistants would be expected to have greater capacity to perform planning, leadership and mentoring roles. Thus their jobs would contain a few differentiating specific hard skills. Figure 2 is a visual representation of the great overlap between the two occupations in terms of the skills required.

Figure 2   Comparison of soft, generic hard and specific hard skills of Secretaries and Personal Assistants

Comparison of somewhat similar occupations

This next comparison brings together two slightly different occupations—Wood Machinists, and Joiners. These two occupations were chosen for further analysis due to their similarity in job role and tasks as well as the difference in training packages they utilise. Although very similar, they do not bear the same level of similarity as Secretaries and Personal Assistants. This allows us to determine the change in skill transferability potential with increasing distance between occupations. The two occupations also represent a declining occupation (Wood Machinists) and a growing one (Joiners) as identified in the first report.

Table 8 below shows considerable similarity in the ANZSCO description of tasks between the two:

Table 8   Tasks required to be performed by Wood Machinists and Joiners

Wood Machinists and Other Wood Trades Workers (4-digit) Wood Machinist (6-digit) (Declining)	Carpenters and Joiners (4-digit) Joiner (6-digit) (Growing)
Wood Machinists cut, plane, turn, shape and sand wood stock to specifications.	Joiners cut, shape and fit timber parts in workshops to form structures and fittings, ready for installation. Registration or licensing may be required.
Tasks include: - studying drawings, work orders and sample parts to determine specifications - determining tooling and machine requirements and sequence of operations - setting up woodworking machines and wood stock for correct cutting, planning, turning, shaping and sanding - operating machines to cut, plane, turn, shape and sand work pieces	*Tasks include:* - studying drawings and specifications to determine materials required, dimensions and installation procedures - ordering and selecting timbers and materials, and preparing layouts - cutting materials, and assembling and nailing cut and shaped parts - assembling prepared wood to form structures and fittings ready to install - cutting wood joints - may repair existing fittings - may work with plastic laminates, Perspex and metals

Source: ABS 2009.

In table 9 we compare and contrast generic hard and specific hard skills of the two occupations as identified in the respective training packages underpinning the qualifications for Wood Machinists and Joiners, in order to determine the level of transferability. Unlike the analysis where the two occupations shared the same qualifications, Wood Machinists and Joiners are generally expected to have different certificates. The most common qualification for Wood Machinists is the Certificate III in Timber and Composites Machining while the Certificate III in Joinery is common for Joiners.

Table 9 **Generic hard and specific hard skills identified in Certificate III in Timber and Composites Machining and Certificate III in Joinery**

Certificate III in Timber and Composites Machining	Certificate III in Joinery
Generic hard skills	*Generic hard skills*

▪ demonstrate effective and appropriate communication and interpersonal skills when dealing with people from a range of backgrounds (C)
▪ complete written documents, forms and timesheets (C)
▪ use communication technologies efficiently (C)
▪ work as part of a team (TW)
▪ use analytical and decision making skills (IE)
▪ apply time management skills to ensure work flow (PO)
▪ sequence work to maximise safety and productivity (PO)
▪ improvements (IE)
▪ identify and report problems and make contributions to their solution (PS)
▪ identify and implement process
▪ develop and implement workplace procedures and instructions (SM)
▪ monitor and evaluate own work quality (SM)
▪ keep the work area clean and tidy at all times (SM)
▪ work with technology safely and according to workplace standards (T)
▪ use software applications effectively (T)
▪ identify sources of information to expand knowledge and understanding (L)
	▪ records relevant information using standard workplace documentation (C)
	▪ understands relevant definitions, terminology, symbols, abbreviations and language (C)
	▪ regulatory, legislative, licensing and organisational requirements (C)
	▪ reports and records hazards and risks (C)
	▪ environmental and OHS requirements, including:
	  ▪ material safety data sheets (MSDS) (C)
	  ▪ codes and standards (C)
	  ▪ plans and drawings (C)
	  ▪ specifications (C)
	  ▪ safety signs and symbols (C)
	  ▪ organisational policies and procedures (C)
	▪ communicates with clients, colleagues and others using effective and appropriate communication techniques, including
	▪ works as part of a team (TW)
	  ▪ provides assistance and encouragement to other team members (TW)
	  ▪ relates to people from diverse social, cultural and ethnic backgrounds and with varying physical and mental abilities (TW)
	▪ applies time management skills to ensure work is completed to time requirements (PO)
	▪ makes suggestions as appropriate (IE)
	▪ maximises use of resources by recycling, re-using or using appropriate disposal methods (IE)
	▪ identifies opportunities to improve resource efficiency and makes suggestions as appropriate (IE)
	▪ evaluates own actions and makes judgements about performance and necessary improvements (SM)
	▪ contributes to workplace responsibilities, such as current work site environmental/sustainability frameworks or management systems (SM)
	▪ manages own performance to meet workplace standards (SM)
	▪ cleans up work area, including tools and equipment (SM)
	▪ uses and operates a range of tools and equipment correctly and safely including computer-controlled equipment (T)

Specific hard skills	*Specific hard skills*
▪ apply appropriate technical skills to setup and operate machinery ▪ sequence operations ▪ undertaking programmed operational maintenance ▪ using project management tools such as Gantt Charts ▪ selecting hand tools appropriate to the task ▪ construct jigs and fixtures ▪ using CAD computer technologies and navigating software ▪ maintaining/sharpening/storing hand tools using appropriate techniques ▪ fabricate synthetic solid surface products ▪ set up, operate and maintain a wide range of timber and composite production machinery	▪ apply basic levelling procedures ▪ use explosive power tools ▪ use carpentry tools and equipment ▪ carry out general demolition of minor building structures ▪ frame and fit wet area fixtures ▪ construct bulkheads ▪ install lining, panelling and moulding ▪ install and replace windows and doors ▪ manufacture stair components for straight flighted stairs ▪ carry out load slinging of off-site materials ▪ cut and bend materials using oxy-LPG equipment ▪ cut and install glass

Source: Certificate III in Timber and Composites Machining and Certificate III in Joinery, National VET Register

All in all, it may be concluded that there is a high degree of transferability between these two occupations but not as high as between the first two occupations. We can therefore also infer that a displaced Wood Machinist may find it relatively easy to perform Joinery work with little need for re-

training. Figure 3 is a visual representation of the moderate overlap between the two occupations in terms of the skills required.

Figure 3   Comparison of soft, generic hard and specific hard skills of Wood Machinists and Joiners
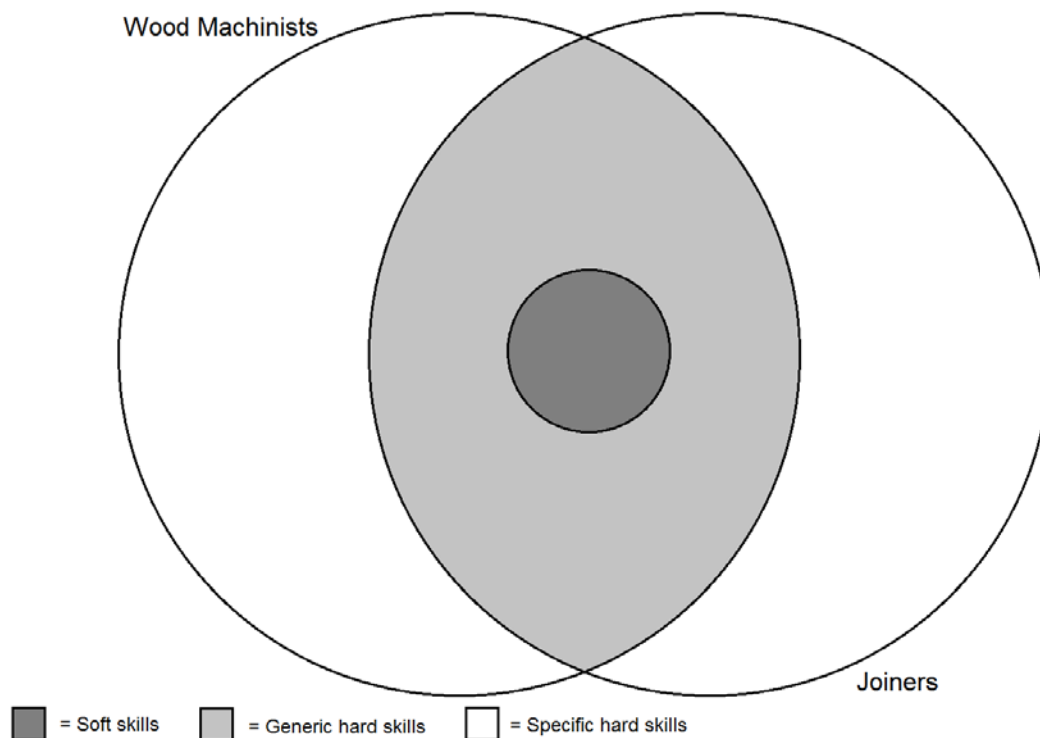
Comparison of dissimilar occupations

In the first two comparisons of qualifications we examined skills transferability across closely related and highly similar occupations. That analysis shows a great similarity in the skills developed between the occupations and therefore suggests a high degree of transferability. Here we examine occupations that are further apart—Shearers and Chefs—who utilise different training packages as well as comprised of significantly different workplaces and tasks.

To begin with table 10 shows how they compare with regard to the ANZSCO description of tasks. This clearly shows that the job roles for the two occupations are very dissimilar and therefore suggests little transferability potential between them.

Table 10 Tasks required to be performed by Shearers and Chefs

Shearers (4 and 6-digit) (Declining)	Chefs (4 and 6-digit) (Growing)
Shearers remove wool and hair from sheep, goats, alpacas and other animals.	Chefs plan and organise the preparation and cooking of food in dining and catering establishments.
Tasks include: ▪ selecting and preparing shearing equipment ▪ catching and positioning animals for shearing ▪ shearing and removing wool and hair from animals ▪ identifying contaminated fibre and injured, infected and diseased animals ▪ treating skin cuts ▪ returning shorn animals to let-out pens for counting and checking ▪ may service, maintain and repair shearing equipment ▪ may shear stud animals with hand shears or special combs	*Tasks include:* ▪ planning menus, estimating food and labour costs, and ordering food supplies ▪ monitoring quality of dishes at all stages of preparation and presentation ▪ discussing food preparation issues with Managers, Dietitians and kitchen and waiting staff ▪ demonstrating techniques and advising on cooking procedures ▪ preparing and cooking food ▪ explaining and enforcing hygiene regulations ▪ may select and train staff ▪ may freeze and preserve foods

Source: ABS 2009.

To answer the question: can the skills developed in the training for a Shearer assist the worker in finding a job as a Chef, we again applied the EC's method for determining transferability. Similar to the previous cases we take soft skills as granted and therefore focus on generic hard and specific hard skills.

Table 11   Generic hard and specific hard skills identified in Certificate IV in Shearing and Certificate IV in Commercial Cookery

Certificate IV in Shearing	Certificate IV in Commercial Cookery
Generic hard skills ▪ working as an individual and a team member (TW) ▪ showing interdependence and initiative in identifying problems (PS) ▪ solving problems individually or in teams (PS) ▪ adapting to new situations (IE) ▪ identifying opportunities that might not be obvious to others (IE) ▪ managing time and priorities (PO) ▪ being open to learning new ideas and techniques (L) ▪ learning in a range of settings including informal learning (L) ▪ using technology and related workplace equipment (T) ▪ Using basic technology skills (T) ▪ applying numeracy skills to workplace requirements (C) ▪ adapting resource allocations to cope with contingencies (PO) ▪ taking responsibility at the appropriate level (SM) ▪ applying OHS knowledge when using technology (T) ▪ coaching, mentoring and giving feedback (TW)	*Generic hard skills* ▪ managing team member conflict sensitively, courteously and discreetly (C) ▪ supporting team members to learn (L) ▪ seeking feedback from colleagues on operational and service issues (C) ▪ empathising and negotiating acceptable solutions to team member problems (C) ▪ providing feedback to managers to inform future planning (IE) ▪ providing instructions, support and coaching; planning work operations to take account of team member strengths (TW) ▪ understanding legal compliance issues and providing advice to team members (SM)

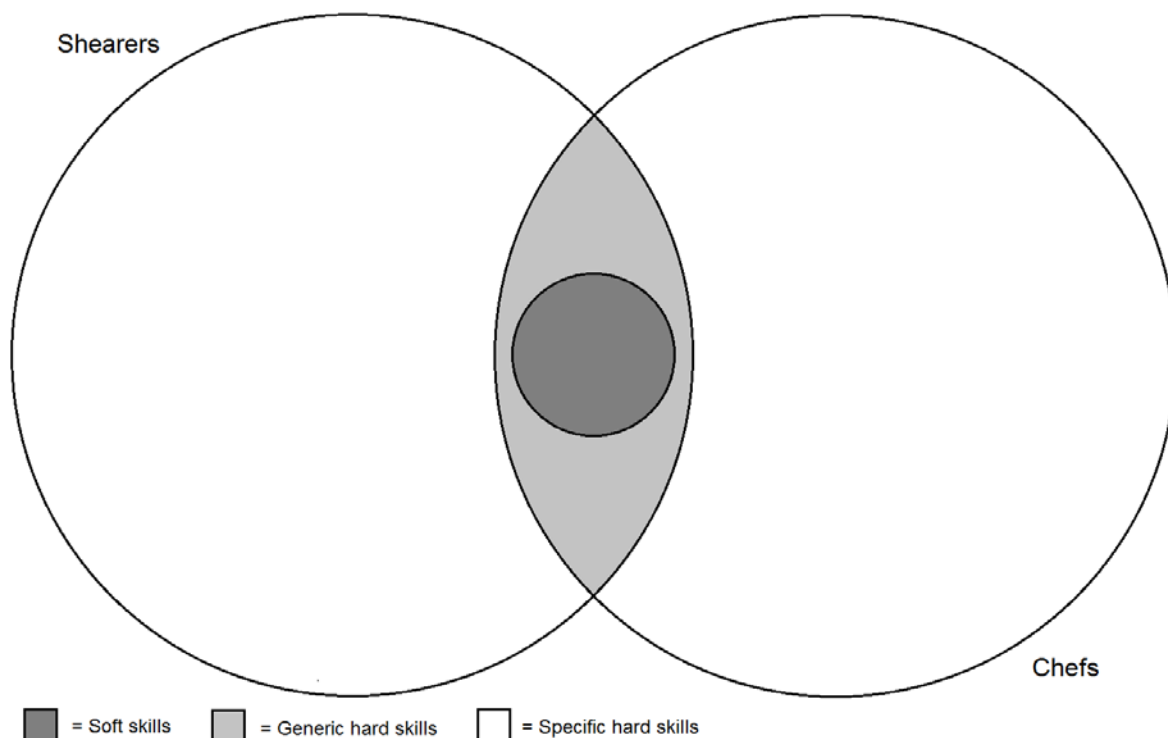| Certificate IV in Shearing	Certificate IV in Commercial Cookery
Specific hard skills	*Specific hard skills*
- provide due care and handle sheep humanely - avoid contamination, second cuts and damage to wool, sheep and people - catch and release sheep safely - sharpen and dress combs, including selecting bevels, teeth thinning and polishing - identify hazards and apply safe operating procedures to grinding - prepare and set up equipment to maintain optimum shearing output - shear sufficient sheep within eight hours to match skill level as per industry award minimum rate of pay for learner shearers - suturing - clean and maintain shearing equipment, site and facilities - identify worn and faulty handpiece components and service handpieces - assess and monitor the shearing conditions and environment - maintain control, coordination, rhythm and output during shearing	- communicating changes in food production requirements during the service period (C) - instructing kitchen staff to adjust food items to meet quality requirements and organisational standards (C) - proactively consulting with colleagues about ways to improve cooking operations (IE) - knowing sources of new information on food trends, products, services and suppliers (L) - Planning food production requirements and organising availability of supplies for the service period (PO) - preparing work flow schedules, food preparation lists and mise en place plans for food production according to menu and food volume requirements (PO) - monitoring and assessing operational efficiency and quality output of the kitchen during the service period (PO) - assessing the operational workflow of kitchen team members assisting them to prioritise workload to deliver a positive dining experience for customers (PO) - Identifying and assessing operational and service issues, discussing and suggesting solutions with kitchen managers (PS) - initiating short term action to resolve immediate kitchen operations or quality problems (PS) - using discretion and judgement as well as predetermined policies and procedures to guide solutions to operational problems in the kitchen (PS) - organising and self-directing own work priorities to coordinate cooking operations (SM) - taking responsibility for implementing predetermined policies and procedures for a range of practices including conflict management, food safety, workplace health and safety (SM) - leading and managing a team of individuals, coordinating cooking operations; proactively seeking feedback and advice on improving kitchen coordination and team leading skills (SM) - Understanding the operating capability of, selecting and using kitchen tools and equipment, computer systems, software and information systems that assist in coordinating cooking operations and team leading activities (T) - evaluate quality of ingredients and make adjustments to ensure a quality product - adjust taste, texture and appearance of food products according to identified deficiencies - technology skills to use food preparation, storage and cooking equipment - produce dishes using basic methods of Asian cookery - plan and modify meals and menus according to nutrition care plans - Use hygienic practices for food safety

Source: Certificate IV in Shearing and Certificate IV in Commercial Cookery, National VET Register

As expected, there is significant similarity at the level of generic hard skills but very little overlap between the specific hard skills developed in the two qualifications, thus suggesting that there would be little chance for worker mobility between the two without significant retraining. This finding applies to comparisons between all significantly dissimilar qualifications selected for analysis in the first report of the study. Figure 4 presents a visual illustration of this difference.

Identifying declining and growing occupations and changing skills demand in Australia

Figure 4　Comparison of soft, generic hard and specific hard skills of Shearers and Chefs

Shearers

Chefs

■ = Soft skills　　□ = Generic hard skills　　□ = Specific hard skills

Another important finding of this analysis is that in reference to the employability skills noted in Certificate IV in Commercial Cookery, it's clear they in fact cut across both the generic hard and specific hard skills categories. This means that although employability skills are commonly perceived as 'soft' skills that can be applied to most occupations, we can see here that they have been developed in a very specific way that has rendered them applicable to only a very few number of jobs.

Ultimately, the analysis in stage one of this report shows that the further away two occupations are from each other in terms of job role, tasks and training package used, the less likely that these occupations will maintain shared skills. Unfortunately, industrial decline and the associated loss of jobs tends to affect whole sectors, and since few of the occupations selected in the first stage of the study belong to the same sector and share training packages and common job tasks, this may suggest that most retrenched workers would struggle to transition into new jobs in growing occupations and may need significant retraining.

In order to further examine skills transferability with greater focus on employment mobility, we adopt an employment cluster analysis in the next stage of the investigation. Here we compare units of competency as opposed to individual skills. We adopt the cluster analysis on the basis that effective skills transferability and employment mobility is most likely to occur between similar occupations, mostly belonging to the same sectors. Conducting the following analysis within an occupational cluster framework allowed the research team to easily understand the potential for employment mobility by recognising the common competencies shared within that group and where units of competency are shared across groups. In this sense, we argue that occupations within the same cluster will maintain a higher degree of transferability potential in comparison to occupations that do not, yet there should be opportunities for diverse occupations to draw upon common generic hard skills which can assist in occupational mobility between occupational clusters.

Stage two: unit of competency level analysis of transferability using the occupational cluster framework

It is generally acknowledged that groups of occupations share common competencies and knowledge requirements. Researchers in the United States were some of the first to begin conducting studies to identify elements (e.g. skills, knowledge, tasks, activities, desirable employee attributes), which were common to 'families' or 'clusters' of occupations (see Venn 1969; Frantz 1973). These occupational studies aimed to guide educationalists in the redesign of training programs in ways which better met the needs of workers in changing labour markets. In 1969, Venn wrote about the US experience in these terms:

> '....most young people today will have to change occupations four or five times during their lives. Therefore, a long range policy of teaching simple, specific job skills no longer makes sense; yet specific entry skills are required for that first job. Workers must be trained for clusters of jobs so they may switch from one job to another as technology advances' (p.26).

Since the 1960s the alignment of training programs to occupational clusters has become a feature of the US vocational training system (Hamilton 2012). Currently, a 'career cluster' training framework is used across the US to assist workers in occupational mobility between groups of occupations, and aligning vocational education and training with local economic and workforce development priorities (see Miller 2008; Janowski 2009; State's Career Cluster Initiative: http:///www.career clusters.org). Within this framework there are 16 nationally recognised career clusters that are identified as having a common level of knowledge and skills (see figure 5). While all occupations require certain essential knowledge and skills (i.e. core skills), the cluster level knowledge and skills set is built on a common core required for career success in the multiple occupations included in the cluster. This shared core consists of various elements including: academic foundations; communication; problem solving and critical thinking; information technology capabilities; health and safety and environmental awareness; teamwork and leadership; ethics and legal responsibilities; employability and career development attributes; and technical (i.e. specific hard) skills (Hamilton 2012). More recently Australian researchers have adopted a similar conceptual approach which aims to strengthen the link between qualifications and the labour market through the use of "vocational streams" and "productive capabilities", which focus on the development of broad-ranging knowledge, skills and attributes that individuals need for a number of occupations within industries (Wheelahan et al 2015). The findings of this study provide useful insights into the complex relationships between occupations, skills, qualifications and training system design which are the subject of this research project.

Drawing on this knowledge we perform the next stage of the analysis, where we examine the transferability potential of competencies developed in the Australian VET system through the use of the occupational cluster framework. We began by re-arranging the 30 growing and 30 declining occupations for skill levels 3 to 5 identified in stage one of the study, into occupational clusters (see tables 12 to 14). In identifying the occupational clusters in which our selected occupations are located we relied upon O*Net database developed under the sponsorship of the US Department of Labor/Employment and Training Administration. O*Net is the primary source of occupational information in the US and provides an online tool for identifying the location of all occupations within the 16 career clusters. While the research team acknowledge that there are going to be knowledge and skills variations between Australian and US occupations, these differences are unlikely to be extensive and will relate primarily to differences in occupational health and safety and licensing requirements. The 'cluster' categorisation system and the extensive research that underpins this system is therefore considered appropriate for our purposes of identifying occupational clusters in the

Australian context. If at any point it was difficult to identify to which cluster an Australian occupation belonged, due to the difference in the terminology used to describe a job, the MyPlan.com website was consulted. This career planning resource has an extensive search function that allows one to enter the title of any occupation and determine the name of the same job in the US context.

Following the identification of clusters, we then selected a group of occupations within the same skill level (3) and cluster (Manufacturing) to examine, ensuring that declining and growing occupations were represented in the sample. Instead of determining the transferability of skills by categorising them into soft, generic hard, and specific hard, the research team measured employment mobility by identifying how many core units of competency for each qualification was being used by other qualifications. If it was established that many qualifications used the same unit, the research team considered that unit to be developing skills that were more transferable than a unit that no other qualifications shared. Thus, through the examination of core units and the number of qualifications that use them, a clearer picture of the level of transferability of the qualification as a whole could be established.

An additional contribution of this analysis is that it becomes possible to determine how many occupations from different clusters used the same core units (see figures 6 to 9). This may be seen as a simple yet effective measure of the ability of the VET training system to produce transferable skills, as through obtaining this information students can establish whether they can use the competencies they have developed in different occupations, across different occupational clusters.

Figure 5   Occupational clusters
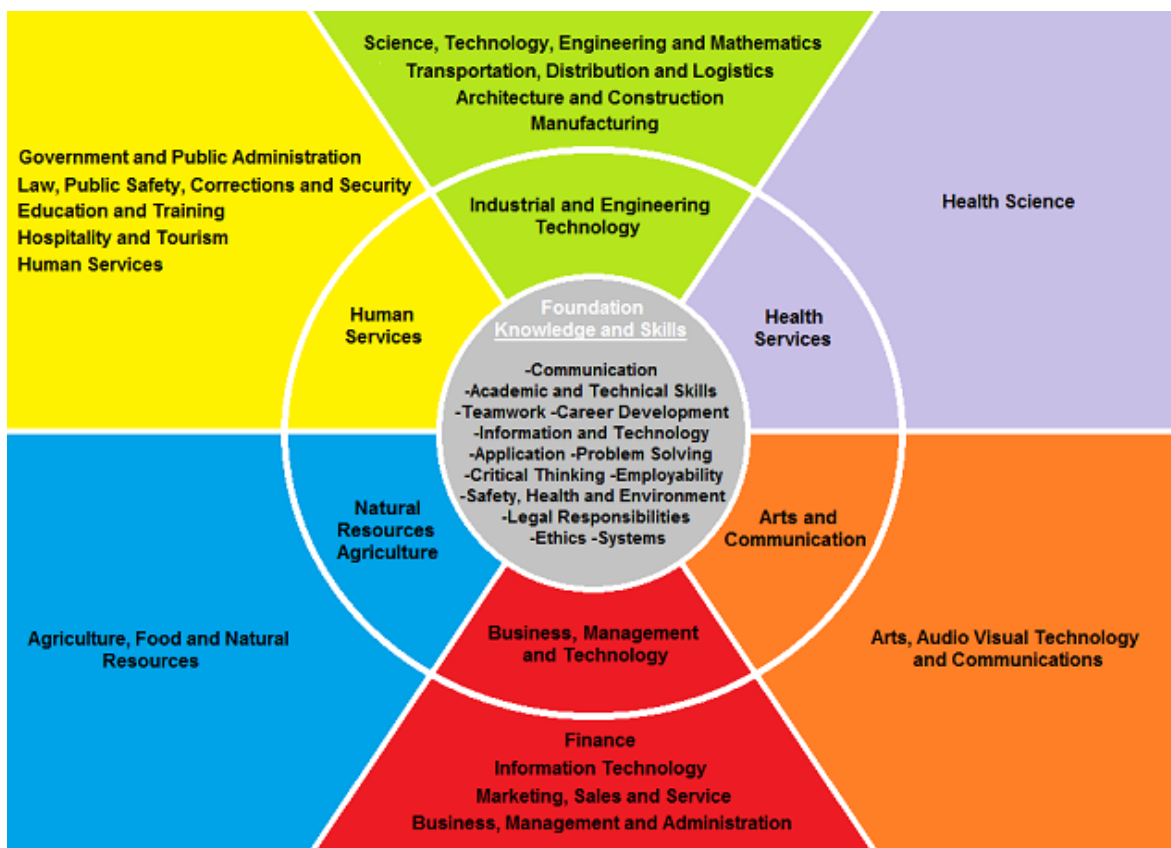
Source: O*Net

Table 12   Occupational Growth and Decline at Skill Level 3, 2006, 2011, and Occupational Cluster

	Occupation	Change in number of jobs	Career Path	Career Cluster
Growing	Electricians	20 471	Industrial and Engineering Technology	Architecture and Construction
	Chefs	13 061	Human Services	Hospitality and Tourism
	Carpenters and Joiners	11 217	Industrial and Engineering Technology	J: Manufacturing C: Architecture and Construction
	Plumbers	10 317	Industrial and Engineering Technology	Architecture and Construction
	Sports Coaches, Instructors and Officials	7 045	Human Services	Education and Training
	Gardeners	6 995	Natural Resources Agriculture	Agriculture, Food and Natural Resources
	Metal Fitters and Machinists	6 140	Industrial and Engineering Technology	Manufacturing
	Personal Assistants	5 900	Business, Management and Technology	Business, Management and Administration
	Structural Steel and Welding Trades Workers	5 807	Industrial and Engineering Technology	Manufacturing
	Real Estate Sales Agents	5 203	Business, Management and Technology	Marketing, Sales and Service
Declining	Shearers	-970	Natural Resources Agriculture	Agriculture, Food and Natural Resources
	Plasterers	-999	Industrial and Engineering Technology	Architecture and Construction
	Nurserypersons	-1 234	Natural Resources Agriculture	Agriculture, Food and Natural Resources
	Boat Builders and Shipwrights	-1 351	Industrial and Engineering Technology	Transportation, Distribution and Logistics
	Wood Machinists and Other Wood Trades Workers	-1 435	Industrial and Engineering Technology	Manufacturing
	Toolmakers and Engineering Patternmakers	-1 676	Industrial and Engineering Technology	Manufacturing
	Graphic Pre-press Trades Workers	-1 802	Arts and Communication	Arts, Audio/Video Technology and Communications
	Telecommunications Trades Workers	-2 419	Arts and Communication	Arts, Audio/Video Technology and Communications
	Printers	-2 814	Arts and Communication	Arts, Audio/Video Technology and Communications
	Secretaries	-30 234	Business, Management and Technology	Business, Management and Administration

Source: ABS 2006, 2009 & 2011; O*Net.

Table 13   Occupational Growth and Decline at Skill Level 4, 2006, 2011, and Occupational Cluster

	Occupation	Change in number of jobs	Career Path	Career Cluster
Growing	Aged and Disabled Carers	30 802	Health Services	Health Science
	General Clerks	30 090	Business, Management and Technology	Marketing, Sales and Service
	Child Carers	22 668	Human Services	Human Services
	Accounting Clerks	18 529	Business, Management and Technology	Business, Management and Administration
	Drillers, Miners and Shot Firers	17 686	Natural Resources Agriculture	Agriculture, Food and Natural Resources
	Truck Drivers	16 068	Industrial and Engineering Technology	Transportation, Distribution and Logistics
	Nursing Support and Personal Care Workers	12 332	Health Services	Health Science
	Bar Attendants and Baristas	12 206	Human Services	Hospitality and Tourism
	Education Aides	12 004	Human Services	Education and Training
	Receptionists	10 523	Business, Management and Technology	Business, Management and Administration
Declining	Gallery, Museum and Tour Guides	-988	Human Services	Hospitality and Tourism
	Product Quality Controllers	-1 235	Industrial and Engineering Technology	Manufacturing
	Photographic Developers and Printers	-1 340	Arts and Communication	Arts, Audio/Video Technology and Communications
	Printing Assistants and Table Workers	-1 608	Arts and Communication	Arts, Audio/Video Technology and Communications
	Debt Collectors	-1 657	Business, Management and Technology	Finance
	Textile and Footwear Production Machine Operators	-1 842	Industrial and Engineering Technology	Manufacturing
	Meat Boners and Slicers, and Slaughterers	-1 940	Natural Resources Agriculture	Agriculture, Food and Natural Resources
	Credit and Loans Officers	-2 213	Business, Management and Technology	Finance
	Sewing Machinists	-2 608	Industrial and Engineering Technology	Manufacturing
	Keyboard Operators	-4 013	Business, Management and Technology	Business, Management and Administration

Source: ABS 2006, 2009 & 2011; O*Net..

Table 14   Occupational Growth and Decline at Skill Level 5, 2006, 2011, and Occupational Cluster

|	Occupation	Change in number of jobs	Career Path	Career Cluster
Growing	Checkout Operators and Office Cashiers	15 223	Business, Management and Technology	Marketing, Sales and Service
	General Sales Assistants	14 020	Business, Management and Technology	Marketing, Sales and Service
	Fast Food Cooks	7 086	Human Services	Hospitality and Tourism
	Kitchenhands	6 087	Human Services	Hospitality and Tourism
	Sales Assistants and Salespersons, Other	5 793	Business, Management and Technology	Marketing, Sales and Service
	Miscellaneous Labourers, Other	5 654	Industrial and Engineering Technology	Architecture and Construction
	Pharmacy Sales Assistants	3 735	Health Services	Health Science
	Personal Service Workers, Other	3 293	Human Services	Human Services
	Ticket Salespersons	3 095	Industrial and Engineering Technology	Transportation, Distribution and Logistics
	Housekeepers	2 780	Human Services	Hospitality and Tourism
Declining	Switchboard Operators	-2 466	Business, Management and Technology	Business, Management and Administration
	Food and Drink Factory Workers	-2 347	Natural Resources Agriculture	Agriculture, Food and Natural Resources
	Timber and Wood Process Workers	-2 397	Industrial and Engineering Technology	Manufacturing
	Packers	-3 482	Industrial and Engineering Technology	Transportation, Distribution and Logistics
	Factory Process Workers, Other	-3 625	Industrial and Engineering Technology	Manufacturing
	Cleaners, Other	-3 907	Human Services	Hospitality and Tourism
	Metal Engineering Process Workers	-4 484	Industrial and Engineering Technology	Manufacturing
	Crop Farm Workers	-5 685	Natural Resources Agriculture	Agriculture, Food and Natural Resources
	Shelf Fillers	-6 441	Industrial and Engineering Technology	Transportation, Distribution and Logistics
	Product Assemblers	-7 782	Industrial and Engineering Technology	Manufacturing

Source: ABS 2006, 2009 & 2011; O*Net.

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Analysis of Manufacturing occupational cluster

Five occupations in skill level three at the 4-digit ANZSCO level were identified as belonging to the Manufacturing cluster: Joiners, Metal Fitters and Machinists, Structural Steel and Welding Trades Workers, Wood Machinists and Other Wood Trades Workers, and Toolmakers and Engineering Patternmakers. Once these occupations were narrowed down to the 6-digit level we were left with a list of 17 occupations. Following further reduction of the list to only include occupations that had corresponding qualifications at the right skill level, we were left with five occupations to analyse (Joiners, Fitters (General), Metal Fabricators, Wood Machinists and Tool Makers). Two of these five occupations use the same qualification/certificate (Tool Makers and Fitters (General)), and another uses a qualification that has the same core subjects as the former (Metal Fabricator). This meant that only three sets of core subjects for three different qualifications were analysed. Figure 6 displays each of the 16 core units for Certificate III in Joinery, as well as the occupational clusters that the units can be found in, and the number of qualifications within each cluster that uses the particular unit.

Figure 6   Certificate III in Joinery, core units by number of qualifications and occupational clusters
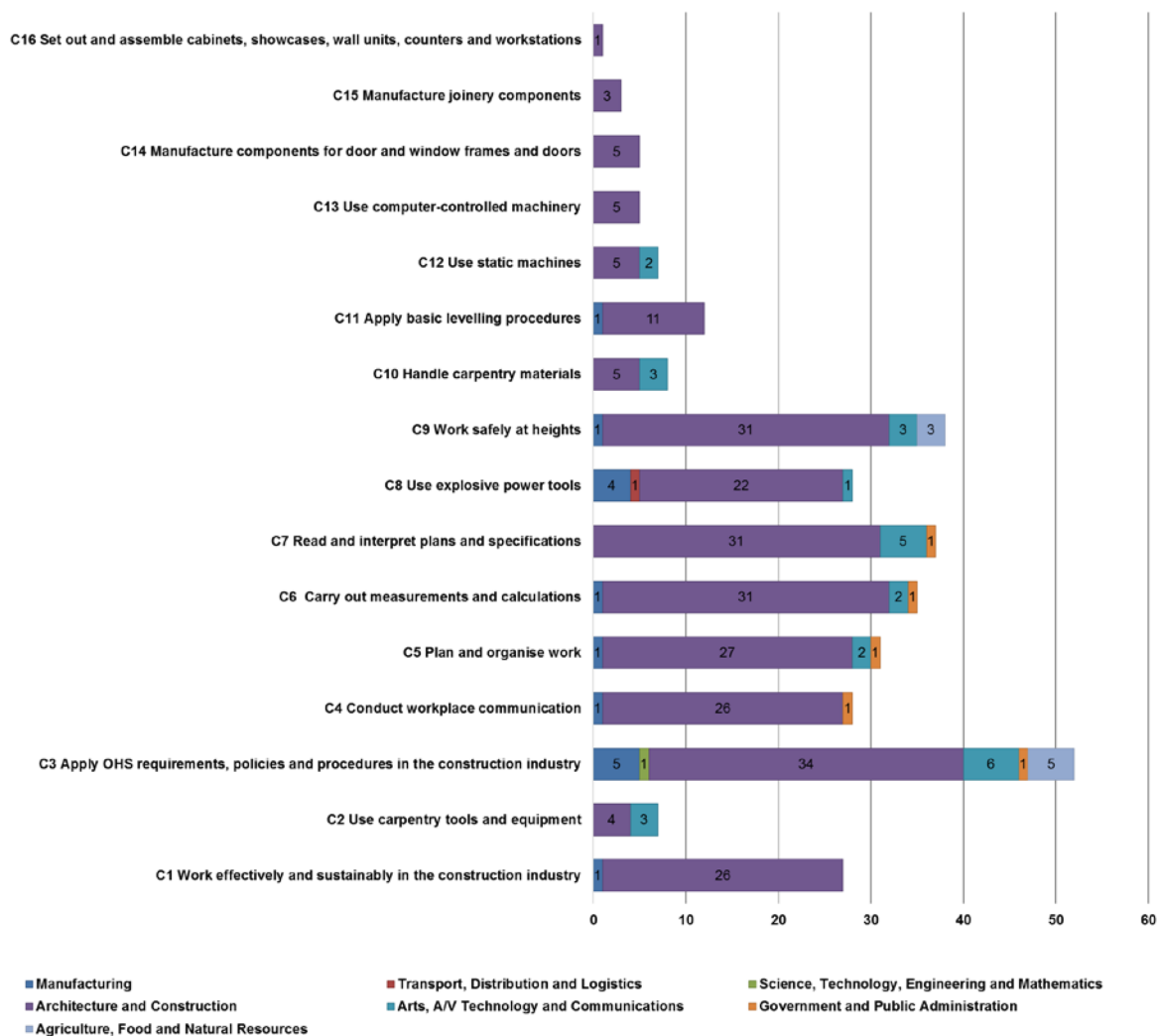
Note: Superseded qualifications have not been included. Source: Certificate III in Joinery

The above analysis shows that only one core unit (C15 - *Set out and assemble cabinets, showcases, wall units, counters and workstations*) is shared by one other closely related qualification (Certificate

III in Carpentry and Joinery). Additionally six core units (C2,C10,C11,C12,C13,C14 and C16) are shared with between two and 12 qualifications, seven core units (C1,C4,C5,C6,C7,C8 and C9) are shared between 27 and 37 qualifications, and one core unit (C3) is shared among 52 other qualifications. The core units are predominantly utilised by other qualifications in the Architecture and Construction cluster, rather than the Manufacturing cluster, and are mostly used by Construction trade related occupations and their corresponding qualifications, including: Carpenters, Bricklayers, Painters, Stonemasons, Signwriters, Tilers, Plasterers, Steel Fixers, Glaziers, Concreters, and Earthmovers.

Yet surprisingly some of the qualifications shown above provide training for quite dissimilar occupations to that of Joiners, and emerge from quite different clusters, such as: Performing Arts Technicians, Production Assistants, and Stage Managers from the Arts, A/V Technology and Communications cluster, Defence Force Members from the Government and Public Administration cluster, and Horticultural Nursery Assistants from the Agriculture, Food and Natural Resources cluster. The fact that the units of competency for the certificate used by Joiners is also used by such a large range of occupations, some from completely different clusters, suggests a significant level of transferability at this level.

The most transferable unit in this qualification (C13 - *Apply OHS requirements, policies and procedures in the construction industry*) was shared among 52 other qualifications. Considering Occupational Health and Safety in the construction industry is specific to that sector, it makes sense that this unit would not be shared among many other qualifications. However, one would presume that units such as C5 - *Plan and organise work*, and C6 - *Conduct workplace communication*, would be highly transferable, and thus spread across more than the approximately 30 qualifications.

Figure 7   Certificate III in Engineering, core units by number of qualifications and occupational clusters
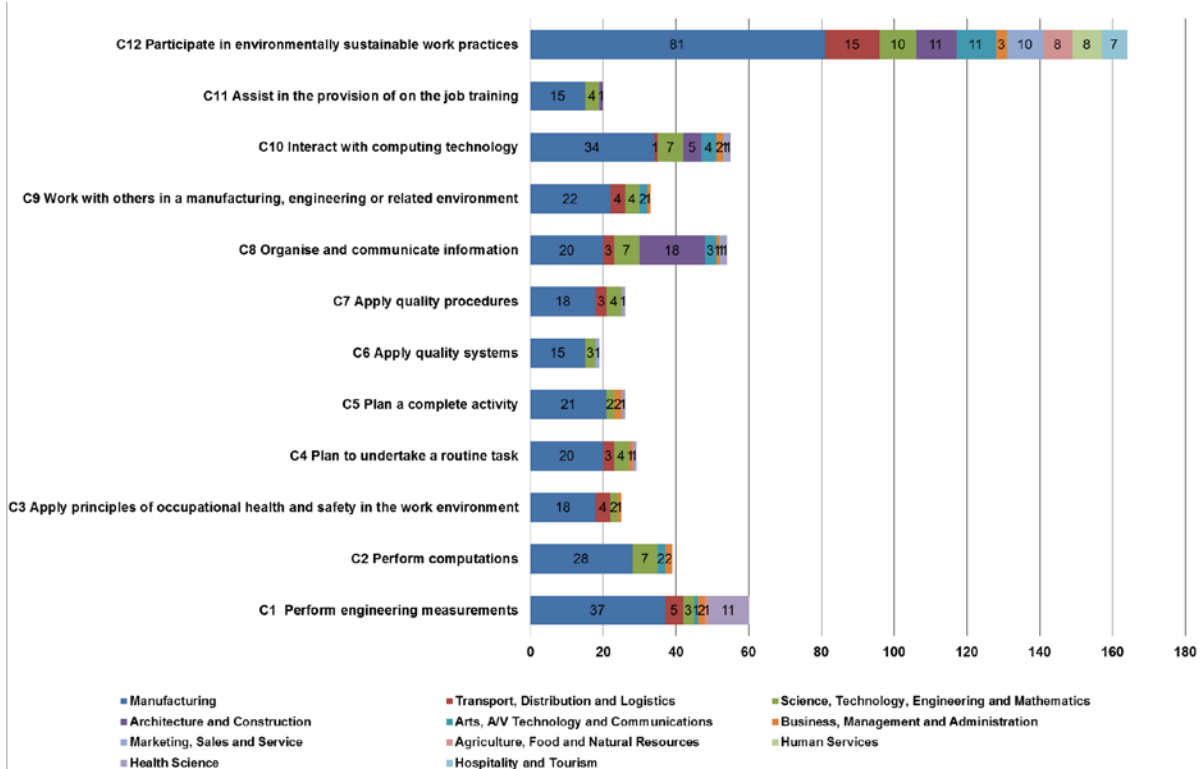
Note: Superseded qualifications have not been included. Source: Certificate III in Joinery

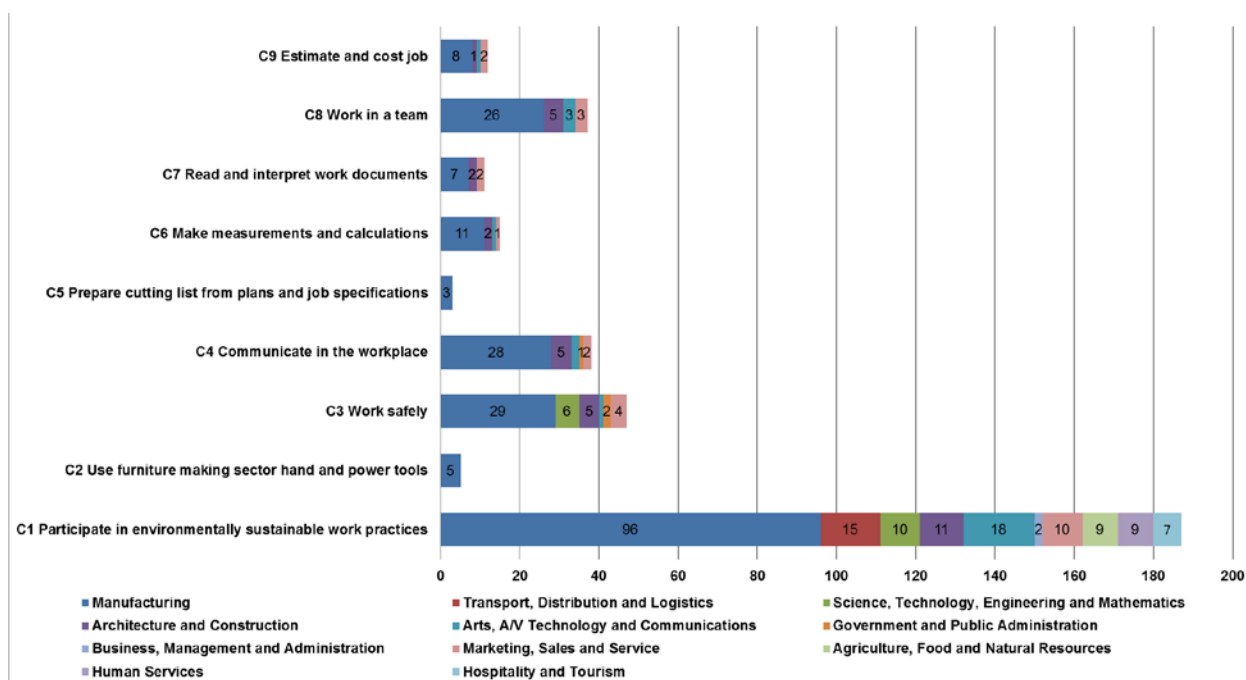Figure 7 displays the results of the unit of competency level analysis for Certificate III in Engineering (Fabrication trade) (Metal Fabricator) and Certificate III in Engineering (Mechanical trade) (Toolmaker and Fitter (General)). Unlike the units of competency for Certificate III in Joinery, most of the

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qualifications that use the above units can be found in the Manufacturing cluster, giving weight to the career cluster argument. Yet there is a greater variance among the clusters that use the units of this qualification as a whole, ten in comparison to the six others that used the core units for Joiners. From a transferability perspective at the unit of competency level, it is clear that the core units of Certificate III in Engineering provide a higher potential for employment mobility than that of Certificate III in Joinery, considering only one of the units is not shared by 20 or more other qualifications. On average, these core units are shared by 45 other qualifications, which means they may be considered more transferable than the certificate for Joiners, which averaged sharing its units with 23 other qualifications. From an occupational perspective, the workers that use the corresponding qualifications listed above vary much more than the ones identified as sharing units with Joiners. For example, some of the significantly different qualifications that share units with Certificate III in Engineering and stem from different clusters include:

- Boat Builders and Repairers (C1) from the Transport, Distribution and Logistics cluster

- Electrotechnology And Telecommunications Trades Workers (C2) from the Science, Technology, Engineering and Mathematics cluster

- Print Finishers (C12) from the Arts, A/V Technology and Communications cluster

- Organisation and Methods Analysts (C3) from the Business, Management and Administration cluster

- Motor Vehicle or Caravan Salespersons (C6) from the Marketing, Sales and Service cluster

- Sugar Mill Workers (C12) from the Agriculture, Food and Natural Resources cluster

- Dressmaker or Tailors (C12) from the Human Services cluster

- Medical Technicians (C8) from the Health Science cluster

- Winery Cellar Hands (C12) from the Hospitality and Tourism cluster

The most transferable unit in this qualification (C12 - *Participate in environmentally sustainable work practices*) was shared among 164 other qualifications, which is expected given its highly general nature. Yet notably, many other units that may be commonly understood to be developing 'generic hard' skills that could be used in any workplace, such as C5 - *Plan a complete activity*, and C6 - *Plan to undertake a routine task*, were only shared with 26 and 29 other qualifications, and were nearly all located within the Manufacturing cluster.

Figure 8   Certificate III in Timber Composites Machining, core units by number of qualifications and occupational clusters

Note: Superseded qualifications have not been included. Source: Certificate III in Joinery

Figure 8 (above) displays the results for the unit of competency analysis for Certificate III in Timber Composites Machining (Wood Machinist). Much like Metal Fabricators and Tool Makers, the clusters which house the qualifications that use these units are varied, however the bulk of them stem from the Manufacturing cluster. The proportion of qualifications that emerged from the top six clusters is:

- Manufacturing (213)

- Architecture and Construction (31)

- Arts, A/V Technology and Communications (26)

- Marketing, Sales and Service (24)

- Science, Technology, Engineering and Mathematics (16)

- Transport, Distribution and Logistics (15)

Similar to the core units of Joiners, five (C2, C5, C6, C7 and C9) are shared between three and 15 qualifications, three core units (C3, C4 and C8) are shared between 38 and 47 qualifications, and one core unit (C1) is shared among 187 other qualifications. On average, the core units of this qualification are shared by 40 other qualifications.

In terms of the quite dissimilar occupations in comparison to Wood Machinists that stood out in the analysis, like the occupations that shared units with the corresponding qualifications for Joiners, Metal Fabricators and Tool Makers, many of them were recurrent and have been stated above. The fact that many of the occupations in this analysis were continually identified in the examination, suggests that there are common competencies that are shared among the Manufacturing cluster, and implies that there is a higher level of transferability among occupations and qualifications in the same cluster than outside of it.

The most transferable unit in this qualification (C1 - Participate in environmentally sustainable work practices) was shared among 187 other qualifications, and is the only unit that was also used by another qualification in this Manufacturing cluster analysis (Metal Fabricators and Tool Makers). Again,

as was seen in the previous certificates, other units that appear to be developing highly transferable skills such as C3 - Work safely, C4 - Communicate in the Workplace, and C8 - Work in a team, were only shared with between 37 and 45 other qualifications. Since each certificate in this analysis has units that cover the areas of communication, planning and organising work, and working safely, it is somewhat surprising they have not been developed in a more transferable way. These findings suggest that the VET training system may not be cultivating transferability at the level of competency to its full potential and in ways that contribute to developing generic competencies that can be used not only within an occupational cluster, but across any occupation.

Transferability of core units of competency among selected declining occupations

In order to establish whether certain occupations and occupational clusters developed competencies that were more transferable than other occupations and clusters, the same analysis was performed on various declining occupations from different skill levels that were identified in stage one of the research project. The results of these analyses are presented in figures 9 to 14. Out of the analyses performed on the corresponding qualifications for Plasterers (Architecture and Construction cluster), Printers (Arts, A/V, Technology and Communication cluster) and Nurserypersons (Agriculture, Food and Natural Resources cluster) from skill level 3, Credit and Loan Officers (Finance cluster) and Keyboard Operators (Business, Management and Administration) from skill level 4, and Packers (Transport, Distribution and Logistics cluster) from skill level 5, the qualification which had the highest average of core units that were shared with other qualifications was Plasterers, with a mean of 39. Packers came in second with an average of 19, then Printers with an average of 16, followed by Nursery persons and Keyboard Operators (14), and lastly Credit and Loan Officers with an average of 7.

In terms of the variance in clusters that house the qualifications that use the same core units as those being analysed in figures 9 to 14, it is clear that Nurserypersons (6-digit ANZSCO) (figure 9 below) have the widest spread since it shares its core units with six clusters other than its own.

Figure 9   Certificate IV in Retail Nursery, core units by number of qualifications and occupational clusters
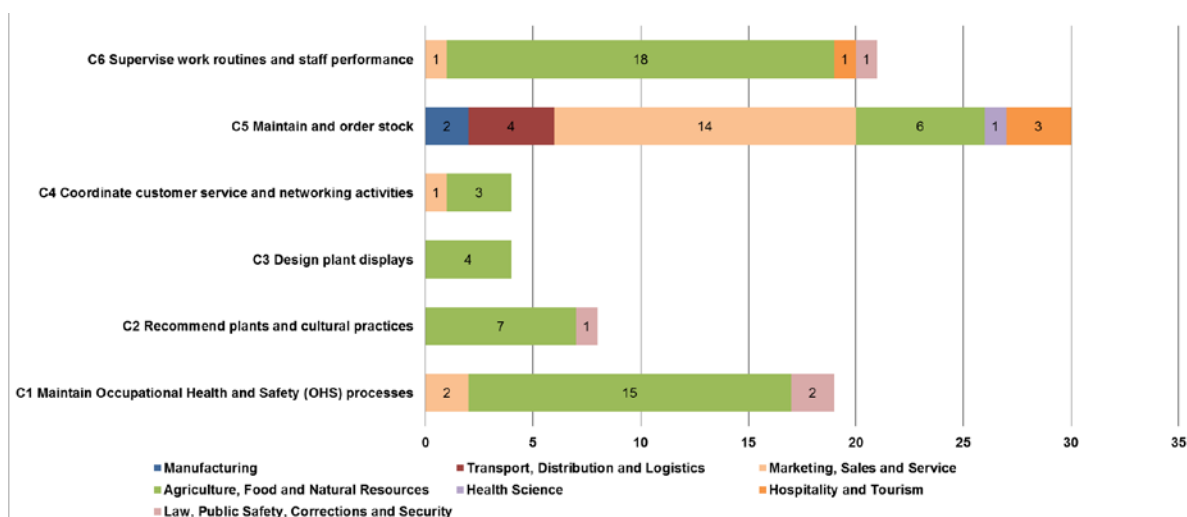
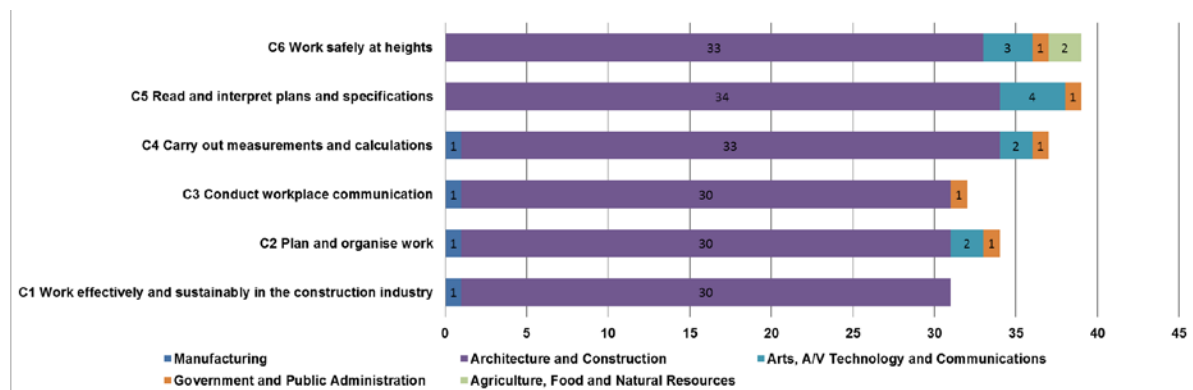Note: Superseded qualifications have not been included. Source: Certificate IV in Retail Nursery

On average the above units are used by a fewer number of qualifications than those shared with Plasterers, Packers, and Printers, yet they may be considered more transferable due to the diversity

of clusters and qualifications they are located in. The different occupations that use these units that are outside of the Agriculture, Food and Natural Resources cluster include:

- Park Ranger (C2) from the Law, Public Safety, Corrections and Security cluster
- Stock and Station Agent (C4) from the Marketing, Sales and Service cluster
- Hairdresser (C5) from the Human Services cluster
- Pharmacy Sales Assistant (C5) from the Health Science cluster
- Seafood Process Worker (C6) from the Hospitality and Tourism cluster

What is interesting about this observation is that apart from one of the six Certificate IV in Retail Nursery's core units, they all appear to be developing competencies specific to the occupation of Nurserypersons, but they are used by occupations located in a greater diversity of clusters. This certificate also contains some 25 elective units which are also shared by a diverse range of occupations and clusters. One of those occupations is Gardeners which was identified as a growing occupation. Nurserypersons finding it difficult to locate work may find it relatively easy to find work as a Gardener without significant additional training.

Figure 10 Certificate III in Wall and Ceiling Lining, core units by number of qualifications and occupational clusters

Note: Superseded qualifications have not been included. Source: Certificate III in Wall and Ceiling Lining

Figure 10 (above) demonstrates the level of transferability of the core units for the corresponding qualification for Plasterers (Fibrous Plasterer at the 6-digit level). Half of these units are specific to this particular occupation and the construction industry, whereas the other half are not. Yet interestingly, all of these units are shared with on average the same amount of other qualifications. Out of the 212 qualifications displayed above, the largest proportion stems from the Architecture and Construction cluster (190) in occupations like Rigging, Concreting, Joinery, Paving, Stonemasonry and Shopfitting. The implication of this finding is that Plasterers may find it relatively simple to transition to these types of Construction occupations, many of which were identified as growing, with some additional training, but they would likely find it difficult transitioning to occupations located outside the Architecture and Construction cluster.

Figure 11 Certificate I in Meat Processing (Meat Retailing), core units by number of qualifications and occupational clusters
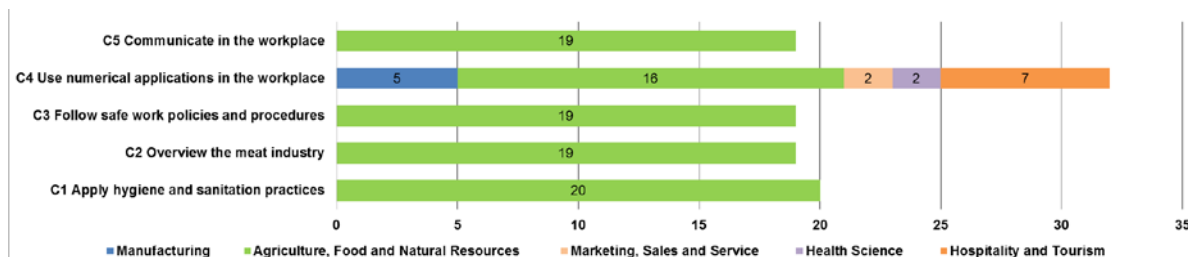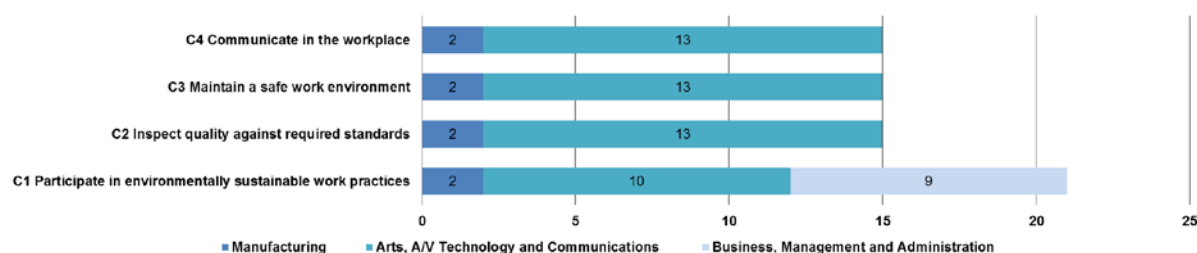

Note: Superseded qualifications have not been included. Source: Certificate I in Meat Processing

According to the ANZSCO definition, Packers are workers who 'weigh, wrap, seal and label chocolate, fruit, vegetables, meat, seafood and other products'. A further analysis of this occupational category at the 6-digit ANZSCO level revealed that among all categories of packers (i.e. Container Packer, Chocolate Packer, Fruit and Vegetable Packer, Seafood Packer and Meat Packer) Meat Packers had witnessed the greatest decline. As a result, we have focused on these workers for further analysis.

The most common qualification for these workers is the Certificate I in Meat Processing. This Certificate contains five core units and 13 electives which consist of mostly specific hard skills. As identified in figure 11 above, the five core units are shared by some 109 other qualifications but nearly all (93) are located in the Agriculture, Food and Natural Resources cluster, and most of these qualifications train individuals to work in food and drink making roles, largely in the area of meat production. Out of the five core units for Certificate I in Meat Processing, only one, C4 - *Use Numerical applications in the workplace*, is used by other clusters. A close inspection of some of the other core units suggests that there are opportunities to further develop transferable competencies with other qualifications and clusters. Two out of the five units cover generic areas of communication (C5) and following safe work practices (C3), which appear applicable to a range of other occupations not currently making use of these units. The implication of the current situation is that the training system does not adequately highlight these generic hard skills. The consequence is that workers with a Certificate I in Meat Processing and facing an uncertain future will be unaware of the potentially transferable skills they possess because they are buried within a highly specialised training package.

Figure 12 Certificate III in Printing and Graphic Arts (Printing), core units by number of qualifications and occupational clusters

Note: Superseded qualifications have not been included. Source: Certificate III in Printing and Graphic Arts (Printing)

The qualification for Printers (figure 12 above) may be considered a lot less transferable than that of Nurserypersons, Plasterers, and Packers. Three out of four of the core units may be described as developing highly generic competencies (C1, C3, and C4), yet on average, they are only shared with 17 other qualifications. The only unit that could be deemed as specific to the role of Printers (C2 - *Inspect quality against required standards*), is used by the same amount of other units as the others in this certificate. Out of the 66 qualifications displayed above, the largest amount stems from the same cluster as the qualification under examination—Arts, A/V Technology and Communications (49). In terms of the occupations that correspond to the qualifications that share units with Certificate III in

Printing, most can be found in the area of printing technology and production, such as: Print Finishers, Screen Printers, Graphic Pre-Press Trades Workers, Chemical Plant Operators, and Paper Products Machine Operators. Of the somewhat dissimilar occupations that stem from the Business, Management and Administration cluster, Keyboard Operators, Medical Receptionists, Legal Secretaries, and General Clerks were present in the analysis. The Certificate III in Printing and Graphic Arts contains 39 electives but unlike the Certificate IV in Credit Management these electives are almost exclusively dedicated to developing specific hard competencies. The implication of this is that Printers have much less opportunity to develop competencies which may enable them to transition to other occupations.

Figure 13 Certificate IV in Credit Management, core units by number of qualifications and occupational clusters
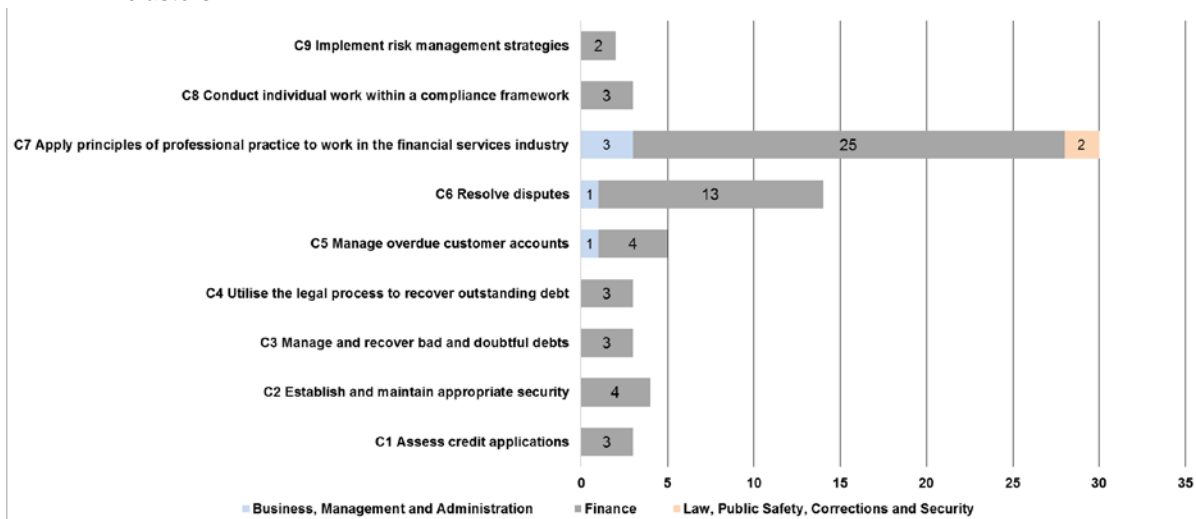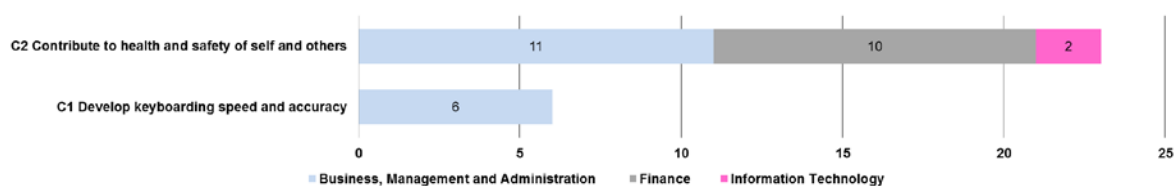

Note: Superseded qualifications have not been included. Source: Certificate IV in Credit Management

The bulk of the units for the corresponding qualification of Credit and Loan Officers (figure 13 above) are shared with five or less other qualifications. Examining the units in closer detail it's clear that all of them appear to be specific to this occupation. Furthermore, since these units are also only shared with qualifications in three other clusters, points to the low transferability potential of the competencies. From an occupational perspective, almost all of the qualifications stem from the Finance and Business area, apart from Conveyancers (C7) from the Law, Public Safety, Corrections and Security cluster. Where Credit and Loan officers may have acquired transferable skills is through elective units of competency. Many of the electives for the Certificate IV in Credit Management develop generic hard skills such as how to manage small teams, lead team effectiveness, assess risk and contribute to health and safety of self and others. The competencies and knowledge developed in these electives are applicable to a wide range of occupations, therefore the transferability prospects of the Credit and Loans Officer therefore tends to be determined by their selection of their certificate electives. In most situations where a trainee is making decisions about elective choices, they would be unlikely to consider the value of transferable skills contained in these units unless this was explained to them.

Figure 14 Certificate III in Business Administration (Keyboard Operator), core units by number of qualifications and occupational clusters

Note: Superseded qualifications have not been included. Source: Certificate III in Business Administration

The narrowest spread can be seen in the clusters that use the core units of Keyboard Operators (figure 14), since only qualifications in the Business, Management and Administration, Finance, and Information Technology clusters also use these units. Yet this observation may be attributed to Certificate III in Business Administration only having two core units: C1 - *Develop keyboarding speed and accuracy,* and C2 - *Contribute to health and safety of self and others.* C1, which focuses on developing occupation specific skills, and is only shared by 6 other qualifications all of which are located within the Business, Management and Administration cluster, whereas C2 which is a much more generic unit that aims to develop generic hard skills related to health and safety in the workplace is shared by 23 occupations and three different occupational clusters (Business, Management and Administration, Finance, and Information Technology). Given the content of this particular unit and the generic skills it seeks to develop which are applicable to nearly all workplace settings, it is somewhat surprising that more occupations and occupational clusters are not also making use of the unit.

The tasks performed by Keyboard Operators include operating a computer to type, edit and generate a variety of documents and reports. Up until relatively recently the corresponding qualification for someone performing this role was the Certificate II in Clerical and Administrative Skills, but this has been superseded, and was not specifically replaced. However the information on the National VET Register concerning Certificate III in Business Administration clearly states that it should be undertaken by those seeking to obtain a Keyboard Operator role. This situation raises some interesting questions about the role of qualifications and skills transferability. As discussed previously the Certificate III in Business Administration is the same qualification normally expected for workers performing secretarial and Personal Assistant roles. While a Certificate II in Clerical and Administrative Skills may enable a Keyboard Operator to move into a Secretary role, it is likely to be more difficult for them to move into the Personal Assistant role without upskilling or doing the Certificate III in Business Administration. For those Keyboard Operators who have already acquired the Certificate III in Business Administration it is likely to be much easier to move into either of the occupations although the skills profile may be significantly different on account of the design of the training package. As already mentioned, this qualification consists of only two core units of competency and eleven electives. From a training package perspective, the variation in skills profile for Keyboard Operators, Secretaries and Personal Assistants is solely on the basis of elective selection. Given these similarities, and the general similarity in job tasks, i.e. office administration and data entry, one would suppose that a Keyboard Operator with a Certificate III in Business Administration would transition into a Secretary or Personal Assistant role quite simply. Therefore, the limitations found to be inherent in the VET training system are not exclusive to the Manufacturing cluster, but rather, can be found across-the-board.

Discussion

This study has been developed in two stages drawing upon two international frameworks to better understand skills transferability. The first stage of analysis drew upon the EC skills transferability framework, which categorises skills according to soft, generic hard and specific hard, while the second stage utilised the US's career cluster framework, which classifies occupations according to career pathways and common 'families' of occupations containing similar skills profiles. Findings from the first stage show that when the EC framework is applied to the Australian training system it reveals new insights into the notion of employability skills. Within the Australian context, employability skills are typically presented as 'soft skills' which are highly transferable. Adopting the EC typology of skills, what our findings suggest is that employability skills fall predominantly in the generic hard skills category, with a few forming specific hard skills in some qualifications. In the Australian system, it is the basic foundation of numeracy, literacy and technology, which equate to the EC's soft skills because they are non-job specific. Even in our categorisation of employability skills as generic hard, we also observe that they have varying degrees of transferability. Some appear to be less transferable and are typically only transferable within common occupational clusters, while others, for example OH&S are more widely applicable. This treatment of employability skills, in our view, would allow for a greater understanding of the skills transferability potential within the training system.

Identifying the skills developed within the training system requires moving beyond an analysis of units of competency and their elements and examining the skills required to complete a unit successfully. The reason for this is that individual units of competency cannot be easily categorised as developing soft, generic hard or specific hard skills because, in most cases, they seek to do all three within any one unit. This skills level of analysis, however, is a much more time consuming exercise and is not without its own limitations and challenges. One of these major limitations relates to how determinations are made about what constitutes a 'soft' versus a 'generic hard' versus a 'specific hard' skill when often the boundaries between these distinctions are highly fluid and open to subjective judgement.

The second stage of the analysis provides a more objective approach to identifying skills transferability potential of occupations by considering the degrees to which units of competency are shared across different occupations and occupational clusters. By focusing on units of competency the research team was able to specify where precise skills, knowledge and performance criteria are shared by different occupations. In this way some of the problems of subjectivity associated with the EC's skills transferability approach was overcome. This unit of competency approach developed by the project team has some utility in understanding the skills transferability potential of different occupations. It can provide a mechanism, for example, to identify the most suitable occupation for a retrenched worker where they can apply most of their existing skills, thus minimising losses of qualification and the cost and time of training new employees. The approach also allows for the identification of the necessity for upskilling and reskilling to achieve a smooth transition for workers made redundant. In this sense the analysis enables employees to compare their skills to an occupation not just within their industry or occupational cluster but also outside their industry/occupational cluster thereby maximising their ability to assess all of their job opportunities. An additional important value in this approach is that it shows that it is only 'soft' and 'generic hard' skills that have the potential for transferability. Rather, as the cluster analysis clearly demonstrates, a lot of 'specific hard' skills are transferable between 'families of occupations' as well as between some that share none or little commonality. A case in point is where Certificate III in Timber Composites

Machining shares units with qualifications in Arts, A/V Technology and Communications (26) and Marketing, Sales and Service (24).

This methodology, however, has notable limitations which are acknowledged by the project team. One of those limitations lies in our application of the methodology, which has focused only on core competencies. This is particularly problematic for those occupations where there are a high proportion of elective units. The results from our preliminary assessment of the role of electives in shaping skills transferability outcomes suggest some general findings which we will further examine in the final report whereby VOCSTATS will be used to identify and examine transferability aspects of the most commonly subscribed electives of selected qualifications. Among these general findings is that for some qualifications, specialist electives serve to develop highly specific hard skills related to occupational specialisation. The Certificate IV in Commercial Cookery, for example, contains numerous electives dedicated to assisting chefs to acquire the skills to specialise in Asian or Indian cooking. These sorts of electives are unlikely to assist in greater levels of skills transferability and occupational mobility. In other qualifications, however, general electives do appear to strengthen the prospects of a worker's occupational mobility through the development of transferable skills. The Certificate IV in Credit Management is one example. Many of the traditional trade qualifications (e.g. plumbing, carpentry, electrical, etc.) also include elective units dedicated to developing small business skills (e.g. 'manage small business finances' and 'investigate micro business opportunities') which are applicable to a range of other occupations. In order to fully understand the full skills transferability prospects of an occupation and its qualifications, therefore, one would need to map all units of competency across other occupations and occupational clusters. This would enable the development of a skills profiling tool in which trainees and workers could better understand which electives tend to establish higher levels of skills transferability and lend better support to occupational mobility. The information required to do this exercise is readily available but would be time consuming and labour intensive. The Australian VET system is a very complex system that is not mapped easily. The development of an occupational database, which provides this information and enables users to compare all relevant occupations and units of competency across the economy, however, would be invaluable for employers, employees, job service providers and others involved in assisting workers to find employment.

The findings suggest that Australia's training system does facilitate skills transferability at both a skills level and unit of competency level. The level of transferability, however, was determined to be highly variant between occupations, with higher levels of transferability possible between similar types of occupations. This suggests that transferability barriers are more related to skill demand differences between occupations rather than the training system itself. The career cluster framework provides some assistance in understanding this relationship between families of occupations and the common skills, knowledge and competencies that underpin them. It is also a useful way to align curriculum and create school-to-work pathways, which lead to employment in related pathway occupations. For adults who are in occupational transition it provides them with a way to assess how their acquired skills and knowledge relate to other types of occupations as they explore career options. This is currently not well understood in Australia and the adoption of such a framework could be of some benefit to not only young people and displaced workers but also schools, training providers and business and industry. As recently noted in a report by the OECD, "Pathways and cluster approaches that allow the most flexibility for current and potential workers in moving from job to job as the economy changes seems to provide the most promise" (2012, p.7).

The findings, however, also indicate that there are barriers within the design of the training system, which are not working in the best interest of transferability and occupational mobility. Training

packages are a central feature of Australia's training system. According to one recent report, there are currently over 1,600 training package qualifications (Fredman 2012), 1,666 to be exact, which are considered by some to be far too many (see Ross 2012; Wheelahan 2012). From the standpoint of our concern about skills transferability there does appear to be considerable opportunity to rationalise units of competency found in a number of qualifications which have different titles but more or less deliver the same knowledge and skills content. These units typically relate to working effectively with others, working sustainably, assessing risk, contributing to health and safety of self and others, etc. When examining the knowledge and skills content of many of these units of competency there appears to be little developed beyond the level of employability skills or generic hard skills, which are transferable to a large range of occupations. As illustrated in stage two of the report, however, often these units are only shared by the occupations located within an occupational cluster despite appearing to be the ones developing the most generic hard skills. It is our view that this is likely the result of training packages being developed by industry skills councils who work in a relatively siloed fashion. This arrangement can contribute to unnecessary duplication and complexity within the system when there is ample opportunity for industry skills councils to cooperate with one another to develop shared common units of competency in areas where the development of generic hard skills are the primary focus. This would assist in not only simplifying what is widely considered an overly complicated training system, while also better facilitating skills transferability and occupational mobility.

The other area where there are opportunities for improvement is in the development of a common language between skills councils and training packages. In conducting the stage one level analysis it became apparent that different training packages were using different terms to describe very similar skills. For example, one of the generic hard skills developed in the Certificate III in Printing and Graphic Arts (Printing) is referred to as 'communicate in the workplace' whereas the similar skill in Certificate III in Wall and Ceiling Lining is referred to as 'conduct workplace communication'. In both cases, the skills are classified as developing 'communication' employability skills. One assumes that the skills developed in these very different training packages are similar and thus transferable between the two occupations but these differences make it difficult to make definitive determinations about the similarities between the skills of these occupations. These differences in descriptors for particular generic skills appear to be the product of language traditions developed within skills councils who perform an important role in developing these packages. The employability skills framework has assisted in the development of a common language within the training system but more can be done.

The value in establishing a common language to describe competencies, skills and knowledge is that these matters become easier to understand across industry boundaries, educational institutions and training bodies, and among policymakers and employers. For employees who are in possession of these skills but perhaps unable to translate them into the language used in alternative occupational contexts this can be an unnecessary and costly barrier. There is often a tendency among workers to believe that their skills are highly unique and not applicable elsewhere (Snell, Schmitt, Glavas and Bamberry, 2015). As we have discovered, many of the training packages reinforce this view by creating what appears to be hard specific skills but are in fact generic hard skills through their use of different language to describe these skills and the duplication of generic units of competency. This can contribute to a situation whereby workers are unable to visualise and understand the transferable skills they possess. It is likely that this situation extends beyond the workers themselves so that employers, job services providers and others do not fully recognise the transferable skills that a worker may be bringing to a new occupation. This is a particularly concerning development when

transferable skills and the ability for easy occupational mobility is being considered increasingly important for workers in the changing labour market. These issues will be explored more fully in stage three of the project.

Over the past few years there has been considerable discussion about the role of employability skills within the Australian training system. The current decision to remove all reference to employability skills within training packages and replace them with basic non-job specific foundation skills is understandable now that these skills are fully embedded. However, as these references to employability skills disappear (as has already taken place across a number of the training packages and units of competency as discovered by the research team) it becomes much more challenging to identify the workplace-specific transferable skills being developed within qualifications. How this is to be addressed will need to be given considerable consideration as the training system is redesigned.

In the final assessment, the analysis makes clear that there are opportunities for workers located in declining occupations to take up employment opportunities within growing occupations and the Australian training system is designed in ways that facilitates this process albeit not perfectly. Opportunities for occupational mobility are going to be the least challenging if transfer is sought from occupations within the same occupational cluster and same skill level. The findings suggest, however, it is highly unusual that some additional training or upskilling will not be required. We could only find a few cases among our 30 declining and 30 growing occupations where little or no additional training would be required for occupational mobility to occur. This was between Keyboard Operators, Secretaries and Personal Assistants, who reside in the same occupational cluster and perform very similar types of work, Tool Makers, Fitters and Metal Fabricators who share part of the same qualification within the same occupational cluster, Joiners and Carpenters who have similar job roles but different qualifications, and Nurserypersons and Gardeners who are in similar lines of work in the same occupational cluster.

Next steps

Data collected as part of this report will inform the next and final stage of the project. In stage three, case studies will be conducted to determine how and where workers employed in declining occupations and/or threatened industries acquire work in new occupations and industries. These case studies will consider: (1) if worker experiences in finding new occupations reflect the transferability potential identified in this stage and (2) how the practices of employers, training providers, unions and job service providers and other government support agencies encourage or impede skills transfer across occupations. These case studies will capture worker experiences regarding skills transferability and occupational mobility and the role of stakeholders in assisting or impeding the transfer of skills across occupations. Findings from stage one illustrated the regional variations in occupational change and employment. In conducting the stage three case studies, these insights and findings will be drawn upon when conducting further labour market analysis to identify growing and declining occupational opportunities within specific case study geographical localities.

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