

Cross-occupational skill transferability: challenges and opportunities in a changing economy

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Additional information relating to this research is available in the accompanying support documents:

Identifying declining and growing occupations and changing skills demand in Australia – support document 1

Examining the transferability potential of skills developed within the Australian Vocational Education and Training system – support document 2

Occupational mobility and skills transferability of workers in transition: systems, perceptions and processes – support document 3

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About the research

Cross-occupational skill transferability: challenges and opportunities in a changing economy

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Industries, and the occupations encompassed by them, are susceptible to many influences, such as fluctuations in the Australian dollar, trade agreements and the emergence of new technologies and ways of working. A recent example of these changes is the decline of the auto manufacturing industry in Australia; closures in this industry have resulted in increasing redundancies leading to many people seeking work. In order to better understand where individuals in these situations can find work, this research looks at the transferability of skills between occupations at the same skill level. In order to do this, the research identifies growing and declining occupations across Australia, assesses how the vocational education and training (VET) system develops transferable skills and explores how workers facing retrenchment understand their transferable skills.

Key messages

- The transferability of a retrenched, or soon-to-be retrenched, worker's skills depends on their ability to identify specific skills as transferable. Many individuals focus on their technical skills when applying for jobs and do not consider other skills they may have developed, such as communication and knowledge of workplace health and safety. Transition programs and job support agencies should help these workers to better understand their transferable skills.
- Improvements could be made to the Australian VET system to encourage more transferability across occupations. The research points to employability skills being made more applicable to all workplace contexts. Currently, employability skills are embedded into training packages to ensure the development of these soft skills; however, they are often developed in an occupation-specific way, thus limiting their transferability. Another suggestion for training packages is to establish a common language to describe competencies, skills and knowledge to make the content of training packages easier to understand.
- The research findings argue the need to reconceptualise how occupations are classified in Australia, such that the transfer of skills is better acknowledged and encouraged. It is important to know how other occupations draw upon the skills inherent in a particular occupation. An occupational cluster framework would enable the mapping of skills across occupations within a 'family' cluster and encourage more movement within this cluster. This is a similar concept to vocational streams, whereby occupations are grouped according to their shared knowledge, skills and practices, rather than on specific workplace tasks and roles, the aim being to promote a more adaptable workforce (Wheelahan, Buchanan & Yu 2015).

For further research in the area of structural adjustment, see Victor Callan and Kaye Bowman's publication, *Industry restructuring and job loss: helping older workers get back into employment*, and John Stanwick et al.'s *The end of car manufacturing in Australia: what is the role of training?*. Both reports were published by NCVET in 2015.

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Executive summary

Background and research aims

This study arose from concerns in policy and academic debates relating to the most appropriate means of responding to Australia's rapidly changing economy. The major industrial transformation that has taken place in this country in recent decades has resulted in the decline of some established industries (for example, manufacturing) and the growth of others (for example, health and community services), simultaneously causing job loss and skills shortages. It has been argued that in situations such as this cross-occupational mobility provides the vital flexibility that enables employers and workers to meet varying employment demands (Bernhardt et al. 2001; Sabirianova 2002). Such a perspective calls for a clear understanding of the concept of and potential for cross-occupational skills transferability between declining and growing occupations, as well as an awareness of how it currently works in practice. This study, therefore, has aimed to highlight the barriers and enablers to skills transferability, while exploring the potential benefits from its effective development and utilisation.

A particular emphasis of the study is on the role of transferable skills (that is, those that can be adapted to different jobs, occupations and industry settings) in cross-occupational mobility during times of industrial restructuring. All workers possess transferable skills to some degree but their awareness and understanding of these skills varies considerably, which limits their ability to see how these skills can be applied to different occupational contexts. The study also explores how effective skills transferability can be managed during employment transition and the ability of the vocational education and training (VET) system to produce transferable skills.

Study methods

The study adopted an integrated multi-method, multi-stage approach, comprising both qualitative and quantitative instruments. The primary intention was to capture:

- changing occupational and skills demand in the Australian economy in the prevailing context of economic transformation
- the capability of the VET system to facilitate the development of the transferable skills needed for cross-occupational mobility
- retrenched workers' understanding of the potential of their skills and how they can be used in other occupational contexts
- the processes undertaken by those that play a role in training and in employment facilitation in transitioning retrenched workers to new occupations and how these actors apply the concept of transferable skills.

Data were collected and analysed in three integrated stages. In the first stage a secondary analysis of data from the Australian Bureau of Statistics (ABS) Census and labour force surveys was conducted to determine how the Australian economy has changed over the past decade, with specific reference to declining and growing industries and occupations. Stage two involved an in-depth examination of the design and content of selected qualifications associated with the identified declining and growing occupations, the aim being to determine the extent to which the VET system

facilitates or impedes cross-occupational skills transfer. In stage three a qualitative case study analysis was conducted and involved documentary analyses and semi-structured interviews with workers, employers and representatives from unions, the training system and job support agencies (for example, Jobactive) to examine how skills transferability works in situations where workers are confronting uncertain occupational futures.

Study findings

A number of key findings emerged from the investigation into the three broad areas of research interest: the occupational consequences of recent industrial restructuring; the role and capacity of the VET system in cultivating transferable skills; and the role of transferable skills in assisting disadvantaged workers to access new occupational opportunities.

Key findings: stage one

The Australian economy has undergone significant transformation and industrial restructuring in the past two decades. The analysis of the 2006 and 2011 ABS Census data reveals that many traditional industries, especially in manufacturing, have declined and are increasingly being replaced by service-oriented sectors such as health care, education, hospitality and retail. This transformation has resulted in employment loss and the need for new work in vastly different occupations; for example, automobile manufacturing workers seeking new employment in hospitality. Furthermore, the decline and growth in the various sectors and occupations varies between regions, presenting different types of cross-occupational mobility challenges.

The cross-occupational mobility that involves little or no additional training is typically horizontal occupational mobility. A skills level analysis of the declining and growing occupations, utilising ANZSCO¹, indicates a general upskilling of the Australian labour market. The implication of this development is that workers employed in unskilled and semi-skilled occupations will find occupational mobility more difficult without retraining or upskilling.

Key findings: stage two

The analysis of the content and design of VET qualifications and their parent training packages reveals that the VET system possesses a reasonable capacity for supporting the development of transferable skills – those skills with the potential to facilitate the occupational mobility of workers, providing them with the flexibility to change jobs across a wide range of occupations. However, the specific ways by which the key employability skills are interpreted and built into different qualifications may limit the extent of their transferability.

The study, however, finds that, in addition to employability skills as the determinant of transferability, the system also embeds certain key competency units whose application cuts across a broad range of qualifications. Ultimately, greater skills transferability and

¹ ANZSCO = Australian and New Zealand Standard Classification of Occupations.

employment mobility could be achieved with more generically constructed employability skills, combined with flexible technical skills specific to occupational clusters.

The importance of 'soft skills' (ability to operate effectively in the workplace) and generic skills, as well as personal attitudes and work ethics, was confirmed by employers and employment facilitation agencies. These skills were recognised as perhaps being the more important transferable skills in recent times.

Key findings: stage three

In stage three of the study, two regional case studies (Geelong, Victoria, and the Latrobe Valley, Victoria) were conducted to determine how workers who confronted uncertain occupational futures understood their transferable skills, and the role of the training sector and employment facilitation agencies in assisting these workers identify the transferable skills that enabled their access to cross-occupational mobility opportunities. The majority of the workers interviewed did not have a comprehensive understanding of the full range of their skills and their transferability. Most of these workers tended to be unskilled or semi-skilled, had known only one employer throughout their entire working lives, had little if any formally accredited training, and had previously never had to consider finding another job.

Workers who did have an understanding of their transferable skills tended to belong to higher-skill occupations (see support document 1 for ANZSCO skill levels analysis), often held a variety of qualifications and had worked for different employers. Skilled workers employed on short-term contracts for contract firms could more easily identify and differentiate their transferable skills (that is, both soft skills and generic technical skills) and specific technical skills.

The dominant challenges in transitioning the displaced workers studied therefore include a lack of formal qualifications, poor understanding of their skills and their transferability value, leading to a general assumption that their skills are not transferable, and they have a lack of basic job market navigation skills.

A wide range of actors often become involved in the efforts of transitioning retrenched workers into new jobs. However, how well these players understand and apply the concept of skills transferability when designing their assistance to displaced workers is questionable. In the cases studied, only one company (Ford Australia) provided a comprehensive transition program which included skills transferability elements.

Key conclusions

The findings from this report lend further support to the view that transferable skills perform an invaluable role in an employee's cross-occupational mobility (Partridge, Chapman & O'Neil 2009; European Commission 2013; Mayer 1992; Misko 1998; National Quality Council 2010; Skills for Jobs 2013; Sweet 2009). However, a number of factors must be taken into consideration when understanding skills transferability and cross-occupational mobility, including:

- Transferable skills are somewhat determined by the training system and the way in which workers and employers engage with the training system. An employee who only acquires specific skills sets, for example, is unlikely to develop transferable skills in a similar way to those who receive full qualifications.

- Transferable skills tend to be soft skills (non-job-specific skills relating to an individual's ability to operate effectively in the workplace) and generic hard skills (technical and job-specific abilities that can be applied effectively in almost all jobs and personal life) and are applicable to a range of occupational contexts. However, the differences associated with the particular skills and knowledge required to perform the different tasks attached to specific occupations mean that some skills are more transferable in some occupational contexts. A wood machinist, for example, is going to find it much easier to become a carpenter and joiner than to become a chef as they share more similar tasks.
- Occupational clusters have the potential to facilitate skills transferability and cross-occupational mobility. These clusters contain certain elements, such as skills, knowledge, tasks, activities and desirable employee attributes, which are common to 'groups' of occupations across industries. Aligning training packages to occupational clusters could contribute to the development of generic competencies, which can also be used across any occupation.
- The local labour market demand for particular skills and types of occupations have significant implications for a worker's prospects for applying the skills developed in one occupational context to another occupational context. If a worker's transferable skills are aligned with growing occupations in similar occupational clusters, they would be in a much better labour market position.
- The ability to make use of transferable skills for cross-occupational mobility is highly dependent on how well the worker – and those who assist them to find employment – understands their skills and the role they perform in occupational mobility.

Key policy considerations

For the development of policy in this area, the study suggests:

- greater recognition and promotion of transferable skills to enhance flexibility in cross-occupational mobility. This includes a role for training providers and employment facilitators to help workers and job seekers recognise and understand their transferable skills
- promotion of the full accreditation of skills and competencies to better assist workers in credential-sensitive labour markets and in understanding and identifying the range of skills they have acquired
- prioritising of partnerships between the VET sector and industry to systematically recognise skills and competencies in vulnerable businesses and the implementation of better processes for the formal recognition of skills gained on the job
- improvements to the training system and, more specifically, to training packages, such that the skills developed are not only transferable within closely related occupations, but more broadly within the economy. Additionally, the establishment of a common language to describe competencies, skills and knowledge could make qualifications and training packages easier to understand across industry boundaries, educational institutions and training bodies, and among policy-makers and employers
- increased awareness and understanding of occupational clusters by workers, training providers and job support agencies. This would ensure that decisions made during employment transitions, as well as advice given, are appropriate and relevant

- extensive and locally sensitive occupational and labour market analyses is required to provide a better understanding of where displaced workers are likely to find appropriate employment that can utilise their transferable skills and potentially technical skills. This should be undertaken alongside a comprehensive analysis of workers' existing skills, both accredited and otherwise
- well-articulated processes are required for establishing and managing effective worker transition programs particularly in situations of retrenchment. Such processes should clearly identify and specify the roles and expectations of different actors in the transition.

There is considerable debate over what constitutes a transferable skill and how best to define and measure such skills.

Introduction

Australia, like many other industrially advanced economies, is undergoing economic and industrial transformation. As a result, some established industries, notably manufacturing, have declined, while others have grown and new ones have emerged. The inevitable consequence of this transformation has been massive job losses, as currently witnessed in the (impending) closure of the automotive industry, smelters and oil refineries, and the retraction of the mining sector, among others. The key concerns in policy and academic debates about this situation relate to:

- employment and the economic implications of job losses
- the approach to best assist workers to find alternative employment
- the degree to which the currently stable and the growing and emerging industries (for example, health and community services, education etc.) have the capacity to absorb displaced workers, as well as provide sustainable employment into the future
- the extent to which the current VET system and the prevailing employer recruitment strategies facilitate employment mobility across occupations and, by extension, facilitate the effective absorption of vulnerable workers into the labour market.

Concerns about economic transition and employment sustainability, therefore, are interconnected, with skills transferability a critical component to that interconnection.

This study examines the role of transferable skills (that is, those that can be adapted to different jobs, occupations and industry settings) in cross-occupational mobility in times of industrial restructuring. Occupational mobility occurs in a range of levels and contexts. For many workers, occupational mobility can take place in the organisation in which they are employed: as they move from one position to another they are able to draw upon similar types of skills. In other cases, it may involve changing employers but gaining employment in a like occupation in the same or similar industry, whether that is in an individual's hometown or a completely different geographical area (Atkinson & Hargreaves 2014; Productivity Commission 2014). In these two levels of mobility, workers typically move vertically (upwards), building on existing skills, cumulative experience and additional training (upskilling), with the objective of enhancing their careers (Shaw 1987). In other situations, a worker is able to use the skills they gained in one occupation to acquire a job in a very different occupation, but which partially relies upon their existing skills (Quintini & Venn 2013). This latter type of occupational mobility, what we define as cross-occupational mobility, is the primary focus of this study.

The importance of transferable skills for occupational mobility and employability is commonly noted by educators, careers counsellors and labour market analysts (European Commission 2013; National Quality Council 2010; Misko 1999; Perkins & Salmon 1988; Subedi 2004). There is considerable debate, however, over what constitutes a transferable skill and how best to define and measure such skills. A common view is that transferable skills are non-technical generic skills, such as communication, problem-solving and the ability to work as part of a team, and can be used in a broad spectrum of jobs and are not occupation-specific. Beerepoot and Hendriks (2013, p.828) note 'the transferability and flexibility of generic skills make them invaluable tools for successful action in highly volatile environments where purely subject-related competencies are

very short lived.' Typically, 'soft skills' are also included among the category of transferable skills. Soft skills are much more intangible and difficult to quantify and formally develop; they relate to issues of creativity, self-initiative and self-control. They are closely connected to personal attributes and characteristics (European Commission 2013). This connection to personal attributes has led some to question about whether these soft transferable skills are actually skills or pertain to personality, attitudes and behaviours (Lafer 2004; Moss & Tilly 1996; Shan 2013; Grugulis 2007). These debates have prompted some to advocate for a more 'holistic' approach, one which recognises that the competencies required for an occupation include both conceptual competencies (cognitive, knowledge and understanding) and operational competencies (functional, applied and psychometric skills, including behaviours and attitudes; see Le Deist & Winterton 2005). It is also generally acknowledged that the skills that employers assess to make hiring decisions are changing, with soft skills being considered alongside and in some cases privileged over the more technical ones (Grugulis & Vincent 2009).

In Australia researchers and policy analysts have sought to better understand the degree of skills transferability in the labour market and the enablers and barriers associated with skills transfer (Mayer 1992; Misko 1998; Partridge, Chapman & O'Neil 2009). 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). Much depends, however, on the level of skills transferability the individual has acquired and how well their skills translate from one context to another (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 (Sweet 2011).

The barriers and enablers to skills transferability are both objective and subjective. As other studies have demonstrated, not all skills are transferable and much depends on the generic aspect of the skill. This typically applies to non-technical and/or soft skills. Transferability is also heavily dependent on the similarities and differences between occupations and their knowledge and skill requirements. It is well known that skill and knowledge boundaries between occupations can restrict occupational mobility (Weeden 2011; Kim 2013). As demonstrated in support document 2, skills transferability is more easily achieved between occupations where similar tasks and skill requirements are needed. While transferable skills may have an objective quality to them at a more subjective level, they are not always well understood by the workers who possess these skills, the potential employers who may rely upon them, or the employment facilitators who seek to assist the workers to find alternative employment.

While all workers possess some transferable skills, their awareness and understanding of these skills can vary widely. As demonstrated in support document 3, workers often only come to understand these skills through their engagement with career counsellors, job service agencies or training providers. One of the major barriers to skills transferability for workers is, therefore, not that they do not possess these skills, but that they are unable to fully identify and express how they are developed in one occupational context and might be utilised and of value in another occupational context. An additional barrier relates to the lack of formal qualifications for most of the workers, as highlighted by the case studies. For these workers, the wide range of skills they possess, developed mostly through informal on-the-job training, go unrecognised and undervalued in relation to

Skills transferability is more easily achieved between occupations where similar tasks and skill requirements are needed

Many countries in the world have a serious shortage of workers possessing the critical soft skills that companies require, along with the ability to adapt and deal with evolving situations

transferability. It is often only through being educated about transferable skills by employment facilitators and representatives from the training system that this group of workers begins to develop an understanding of their skills and their value in the labour market. For the individual worker, employability depends not only on the knowledge, skills and attitudes they possess but also on the ability to identify and present these attributes to potential employers (Hillage & Pollard 1998). Ultimately, effective skills transferability depends on the processes established to manage employment transition, in addition to the capacity of the VET system to produce skills with a transferability capacity. These issues are explored in relation to the Australian training system in support document 2. As seen in the various cases studies, the transition system and the coordination of its many actors is not always as effective as it should be.

Another implication of rapidly changing job and labour markets is also that transferable skills are becoming much more important than the technical or occupation-specific skills (Misko 1995, 1998, 1999; Partridge, Chapman & O'Neil 2009; Perkins & Salmon 1988). According to the 2015 *Global Talent Index report*, many countries in the world have a serious shortage of workers possessing the critical soft skills that companies require, along with the ability to adapt and deal with evolving situations. With cycles of economic change becoming shorter, workers will increasingly need to prepare themselves and develop the necessary soft skills to adapt and respond to constant changes (Economist Intelligence Unit 2015).

This insight has led to the argument that one of the keys to developing transferable skills is to design improvements to the training system itself to ensure that both occupation-specific and more generic skills and competencies are developed in employees. Across a range of countries, educators and policy-makers have re-evaluated their approach to skill formation and recalibrated the balance between 'generic' and occupation-specific skills in their training systems (Skills for Jobs 2013; Subedi 2004; Sweet 2009; Warhurst, Grugulis & Keep 2004; Winterton & Haworth 2013). Likewise, in Australia the ongoing economic transformation has forced a re-examination of the types of skills developed and the effectiveness of the training system.

In Australia, skills development and accreditation is guided by industry training packages, which provide guidelines on the skills composition required for the various formal qualifications awarded (Misko 2010). In the current system transferability is purportedly enhanced by a set of skills built into every training qualification in the form of employability skills (Curtis & McKenzie 2001). However, this raises a number of questions related to how effectively transferable these skills are, how well workers and those who assist them to find employment understand the role and importance of transferable skills, and whether these skills and understandings are sufficient enough to ensure effective employment mobility for workers across occupations.

In this study, we interrogate the capacity of the system in this respect, as well as the broad context in which transferable skills are produced and utilised. The ultimate objective of the research is to highlight the key barriers and enablers to skills transferability. The project is premised on the understanding that in rapidly changing economies, where industries are being restructured, cross-occupational mobility is vital in enabling employers and workers to flexibly meet varying employment demands (Bernhardt et al. 2001; Sabirianova 2002).

This report is organised into four broad sections. The section following this introduction presents a brief description of the study and the methods utilised to collect and analyse data. The third section presents a summary of the key findings, while the final section presents key policy suggestions.



Methodology

This study utilised an integrated multi-method, multi-level methodology, comprising both qualitative and quantitative instruments. The analysis aimed to capture the complexities and specificities of industrial transformation, skills development and cross-occupational employment mobility, and was guided by the following key research questions:

- What is the skills demand profile in the changing Australian economy; which occupations are growing and which are declining?
- To what degree do the industry training packages and qualifications that underpin the Australian VET system facilitate and enhance horizontal cross-occupational skills transfer and employment mobility?
- What are transferable skills and do retrenched Australian workers possess them and/or understand them?
- How can transferable skills be identified and utilised to facilitate productive occupational mobility in the context of economic transition?
- What is the role of training and employment support actors in the process of transitioning retrenched workers and how do they utilise the worker's existing skills to find them work in new occupations?

The data collection and analysis was organised into three integrated stages, which were designed to incrementally address the research questions and comprehensively meet the scope of the study. The first stage involved a secondary analysis of ABS Census and labour force survey data to determine how the Australian economy has changed over the past decade. In this stage, we identified declining and growing occupations, as well as employment change within and between skill levels, as a way of understanding the skills demand profile of the emerging industrial landscape. An additional aspect of this inquiry was to gain a better understanding of the implications of changing skills and occupational contexts for the occupational mobility prospects for workers with different occupation-specific skills. (See support document 1 for full discussion of method and findings from this stage of the research.)

The declining and growing occupations identified in this analysis formed the basis for the examination in stage two of the study, where the training architecture itself was considered. In this stage of the research an in-depth examination of the design and content of selected qualifications associated with the identified declining and growing occupations was conducted, the aim being to determine the extent to which the VET system facilitates or impedes cross-occupational skills transfer. In examining this question, we considered transferability at two different levels of the training system: we began at the level of the skills themselves and followed this with an examination at the level of units of competency. In the former, we focused on the key employability skills, which are embedded in the training fabric for all qualifications and aim to ensure broad-range occupational transferability. In the latter, we focused on how units of competency are shared across different qualifications and the extent to which this guarantees skill transferability across diversely different occupations. These two levels of analysis enabled the research team to make determinations about how well Australia's training

architecture delivers transferable skills opportunities. (See support document 2 for a full discussion of the method and findings from this stage of the research.)

In stage three we employed a qualitative case study methodology, involving documentary analyses and semi-structured interviews with workers and employers, and representatives from trade unions, skills councils, the training system and job support agencies (for example, Jobactive) to examine how skills transferability works in practice. The focus was on the questions of whether retrenched or vulnerable workers in Australia possess and understand transferable skills, what these skills are and how they are identified, and how the agencies charged with employment transition utilise them to assist these workers find new jobs. Such an approach views skills as the product of social and material processes involving institutional influences and the range of actors listed above (Lloyd & Payne 2002). A worker's labour market, workplace experiences and their involvement with training and employment facilitation agencies have implications for how well they develop and come to understand their transferable skills and occupational mobility prospects. The case studies were drawn from two localities in the state of Victoria – Geelong and the Latrobe Valley – both of which have experienced significant industrial change and company closures leading to worker vulnerabilities and worker retrenchments. (See support document 3 for a full discussion of the method and findings from this stage of the research.)

While some occupations may be specific to an industry, others may be found across a range of industries.

Key findings

The findings are presented according to the sequence adopted in the investigation and guided by the key research questions. We begin with an examination of the industrial restructuring taking place and the changing employment landscape. After identifying the emerging skills and occupational demand profile, we look at how the Australian VET system is set up with regard to the development of effective transferable skills. Focusing on the Geelong and Latrobe Valley case studies, we examine how retrenched and soon-to-be-retrenched workers come to understand the transferability value of their skills in the rapidly changing local labour market. We follow with an analysis of the transition process, its core actors, and how they understand and utilise workers' existing skills to assist them to find new jobs and make career and retraining decisions.

Declining and growing occupations and changing skill demand in Australia

Cross-occupational mobility is most likely to involve mobility within similar skill levels (that is, horizontal occupational mobility). The prospects for an individual's cross-occupational skills transfer, therefore, are significantly influenced by employment opportunities in particular occupations and the skill levels in which they are located. These occupational and skills employment opportunities change over time and vary from one location to another. As a first step to understanding the changing employment opportunities for particular occupations and skills categories, it is important to understand the labour market context and how it shapes occupational mobility in particular ways.

Attempts to understand occupational change have tended to take an industry approach, which focuses on how industrial shifts have contributed to changing employment opportunities from one industry and sector to another (for example, manufacturing to health care). In these explanations, occupational and skill demand changes are considered to be determined by industry developments and influences. The relationship between occupations and specific industries, however, is not always straightforward. While some occupations may be specific to an industry, others may be found across a range of industries. Where the boundaries of an industry begin and end, and who to include among its workforce, are also often difficult to establish, particularly given the increasing rate in many industries of the outsourcing of tasks and operations. These industry-based approaches, therefore, have certain limitations with regard to understanding occupational mobility and labour market conditions.

An alternative approach, which is adopted in this study, involves an occupation and skills approach. This approach acknowledges that single occupations exist in multiple industries and considers them as distinct individual entities (as opposed to undefined parts of an industry) in the analysis of occupational growth rates. This occupation-based approach is overlaid with a skills-level analysis, whereby the changing employment composition of occupations is also examined according to various skill levels, which, as discussed earlier, is important for understanding the context for horizontal occupational mobility and skills transferability.

An analysis of the 2006 and 2011 ABS census data through this occupation and skills-level approach reveals a number of changes in Australia's labour market, which has implications for horizontal occupational mobility and skills transferability. First, while overall employment grew by 1.1% between the 2006 and 2011 census periods, job growth was spread unevenly across skill levels. Higher-skilled occupations, commensurate with a bachelor or higher degree qualification (ANZSCO skill level 1), or those requiring an associate degree, advanced diploma or diploma (ANZSCO skill level 2), experienced job growth of around 15% between 2006 and 2011. Semi-skilled occupations (ANZSCO skill level 4), commensurate with Australian Qualifications Framework (AQF) certificate II or III, grew slightly less, at 12%, between the two census periods. The slowest rate of job growth occurred among technical trade-oriented occupations, commensurate with AQF certificate IV or III (ANZSCO skill level 3), which grew at a rate of 6.5%, and unskilled occupations, which grew by less than 2% between the 2006 and 2011 census periods. Of the total number of additional jobs created between 2006 and 2011, 57% were at higher skill levels (ANZSCO levels 1 and 2), highlighting a general upskilling in the labour market. One of the implications of these labour market conditions is that unskilled workers, many of whom do not hold formal qualifications, are unable to take advantage of occupational mobility in the same ways as highly skilled workers.

Between the 2006 and 2011 census periods, unskilled workers in the manufacturing industry were particularly disadvantaged. While there was some job growth among highly skilled manufacturing occupations over this period, with occupations at skill level 1 growing by 1.2% and occupations at skill level 2 growing by 2.8%, all other skill levels experienced a significant decline in the number of jobs. Unskilled manufacturing positions suffered the worst decline. Between 2006 and 2011, some 43 869 unskilled manufacturing jobs (nearly a quarter) were lost from the industry. The industries most likely to provide opportunities for unskilled displaced manufacturing workers, with little requirement for retraining or upskilling, are the mining and construction industries, where unskilled jobs grew by 52% and 10%, respectively, between the census periods. In numerical terms, however, this job growth only represented 2769 new jobs in the mining industry and 8641 jobs in the construction industry. Unskilled job opportunities in the mining industry, however, are likely to require relocation or fly-in-fly-out work. Moreover, the fall in commodity prices means these jobs are becoming significantly scarcer.

Other job options for unskilled manufacturing workers might be found in the retail trade, and accommodation and food services industries, which experienced the strongest numerical growth in unskilled jobs. Some 63 327 additional unskilled jobs were created in these combined industries between the 2006 and 2011 census periods. However, since these industries are mostly characterised by casual employment, high staff turnover and lower remuneration than unskilled work in traditional industries (such as manufacturing), employment in these industries is more likely to be used as a stop-gap measure. This means that workers may continue to seek jobs in other industries or may have to consider retraining or upskilling in order to gain more secure work.

Mobility between occupations at common skill levels, however, will also be significantly influenced by the similarities and differences in skills sets between these growing and declining occupations. The occupational analysis of the census data suggests that the skills required for growing occupations are, in general, significantly different from those

Between the 2006 and 2011 census periods, unskilled workers in the manufacturing industry suffered the worst decline.

The health care and social assistance industry witnessed the strongest job growth of any industry between 2006 and 2011 to become Australia's largest employing sector.

required in declining occupations. The occupations that showed the strongest growth and greatest decline in worker numbers for the 2006 and 2011 census years are presented in table 1.

Table 1 Occupational growth and decline by skill levels, 2006, 2011

		Occupation	Persons employed 2006	Persons employed 2011	Difference in persons employed 2006-11	% change 2006-11
Skill level 1	Growing	Registered nurses	172 565	206 916	34 351	19.9%
		Accountants	123 373	138 298	14 925	12.1%
		ICT managers	29 964	42 451	12 487	41.7%
	Declining	Mixed crop and livestock farmers	41 349	34 724	-6 625	-16.0%
		Livestock farmers	83 804	75 113	-8 691	-10.4%
Corporate services managers		21 804	7 365	-14 439	-66.2%	
Skill level 2	Growing	Contract, program and project administrators	83 902	104 658	20 756	24.7%
		Office managers	92 274	108 230	15 956	17.3%
		Architectural, building and surveying technicians	34 601	49 236	14 635	42.3%
	Declining	Electronic engineering draftspersons and technicians	5 253	4 569	-684	-13.0%
		Enrolled and mothercraft nurses	19 396	17 892	-1 504	-7.8%
Skill level 3	Growing	Safety inspectors	5 844	3 365	-2 479	-42.4%
		Electricians	90 242	110 713	20 471	22.7%
		Chefs	44 552	57 613	13 061	29.3%
	Declining	Carpenters and joiners	87 032	98 249	11 217	12.9%
		Telecommunications trades workers	19 128	16 709	-2 419	-12.6%
Skill level 4	Growing	Printers	15 312	12 498	-2 814	-18.4%
		Secretaries	94 403	64 169	-30 234	-32.0%
		Aged and disabled carers	77 413	108 215	30 802	39.8%
	Declining	General clerks	206 292	236 382	30 090	14.6%
		Child carers	85 258	107 926	22 668	26.6%
Skill level 5	Growing	Credit and loans officers	24 346	22 133	-2 213	-9.1%
		Sewing machinists	13 314	10 706	-2 608	-19.6%
		Keyboard operators	52 923	48 910	-4 013	-7.6%
	Declining	Checkout operators and office cashiers	95 681	110 904	15 223	15.9%
		General sales assistants	442 894	456 914	14 020	3.2%
Declining	Fast food cooks	25 092	32 178	7 086	28.2%	
	Crop farm workers	25 540	19 855	-5 685	-22.3%	
	Shelf fillers	51 103	44 662	-6 441	-12.6%	
		Product assemblers	32 669	24 887	-7 782	-23.8%

Source: ABS 2006, 2009 & 2011.

The occupational changes illustrated in table 1 tend to align with the growth and decline of certain Australian industries; for example, the health care and social assistance industry witnessed the strongest job growth of any industry between 2006 and 2011, to become Australia's largest employing sector. Occupations found in this industry, such as registered nurses (skill level 1), aged and disabled carers (skill level 4) and child carers (skill level 4), were also some of the fastest growing occupations in Australia. Likewise, occupations associated with other growing industries such as accommodation and food

services, and retail industries are some of the country's fastest growing (for example, chefs, checkout operators and office cashiers, general sales assistants, fast food cooks). Significant occupational job loss among livestock farmers, crop farm workers, sewing machinists and product assemblers is, likewise, associated with general job decline in the agricultural and forestry industry and the manufacturing industry.

Not all declining occupations, however, can be directly associated with declining industries. Overall, secretaries (skill level 3) experienced the greatest decline of any other occupation, losing almost a third of the entire workforce (-32%). This contraction is likely to be a result of a general reorganisation of office work such that functions formerly performed by office secretaries such as typing, filing and data entry are now either computerised or performed by individual officials.

While it is important to understand the implication of occupational and skill level changes for cross-sectoral employment mobility, it is equally important to appreciate that there are significant regional variations in the types of occupational and skill level changes taking place. This understanding is particularly important in a regionally diversified economy such as that of Australia, where industrial activity varies between and within different states and territories. Our examination found distinct patterns of occupational clusters in certain states and territories, such as mining-related jobs dominating the economies of Western Australia and Queensland, public sector occupations overshadowing others in the Australian Capital Territory, as do social welfare and support roles in the Northern Territory. Likewise, in Victoria, New South Wales and South Australia there was a high increase in what may be considered personal care and assistance jobs (aged and disabled carers, child carers and general clerks). Although these regional occupational trends exist, significant similarities across some occupations related to the growth in the health care and social assistance, and the retail services industry are still present. The same applies to the decline of the manufacturing, agricultural and forestry, and administrative and support services industries. These findings suggest that the patterns of occupational growth and decline found within the regions are consistent across the country.

In terms of the extent to which regional employment mobility was likely to take place, our analysis found opportunities for workers employed in specific declining manufacturing jobs in Victoria (for example, metal fitters) to obtain employment in Western Australia and Queensland's mining industry, although these are likely to become more scarce in the future. However, since growing and declining occupations in some sectors are concentrated in different states and territories, physical relocation across regions is likely to present a major barrier for employment mobility. For the purposes of considering skills transferability, the study shows that retrenched workers from declining occupations and industries will most likely need to consider occupations in diversely different industries. For example, since most occupations in manufacturing are in decline, retrenched workers will need to apply their skills in the emerging industries of health care, retail and hospitality. An important question, examined in the next section, is therefore whether or not the VET system is designed and sufficiently equipped to develop skills capable of such broad cross-sectoral transferability.

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The Australian VET system and the development of transferable skills

The current Australian VET system is pillared by three important elements, which were established under the Australian National Training Authority (ANTA) policies of the 1990s. These pillars include the Australian Qualifications Framework, the VET Quality Framework (including the Standards for Registered Training Organisations), and training packages, the latter of which were, until recently, developed by industry skills councils (ISC). Training packages are revised and updated periodically to reflect any changes in industry skills demand. From January 2016, this role is now performed by Service Skills Organisations under the direction of Industry Reference Committees.

Under the AQF there are ten qualification levels, ranging from certificates to higher education degrees. 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*: this level expands on the previous level.
- *Certificate III*: this level extends the skills and knowledge to new environments and provides technical advice and some leadership.
- *Certificate IV*: in this level a variety of contexts is introduced that are complex and non-routine and require some leadership and guidance from others; often regarded as a supervisory level.

Training packages are fully modularised to allow for considerable flexibility and customisation for employers, training providers and their trainers, as well as trainees. The VET system also allows students to obtain skill sets, which may be required by a student to meet industry needs or licensing or regulatory requirements (Department of Education, Science and Training 2005); however, skill sets are not formal qualifications. This presents concerns for occupational mobility, given that skill sets obtained in one industry may not be formally recognised in another. It is for this reason that we focus on qualifications as the unit of analysis, rather than skill sets. That 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, achieved through a set of 'employability skills', commonly built into every training qualification.

Employability skills

Employability skills in the Australian training context began in the form of key competencies, which were introduced into the training system through the Finn Review of post-compulsory education and training (1991), and further refined by the Mayer Committee (Mayer 1992). 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. Following the endorsement of the Employability Skills Framework in 2005, the key competencies have now been replaced by the identified employability skills (Australian Chamber of Commerce and Industry & Business Council of Australia 2002, p.7). Employability skills are embedded into training packages in such a way that they

form an essential part of VET training performance requirements. There are eight skills in all:

- communication
- teamwork
- problem-solving
- initiative and enterprise
- planning and organising
- self-management
- learning
- technology.

To facilitate a degree of occupational specificity, the skills allow for customisation to specific industry skill requirements, meaning that the various industry skills councils have the ability to interpret the skills in their training packages differently. The current VET system is characterised by strong industry input into the nature of the skills produced and supports clearly demarcated training territories, which are overseen by industry-dominated skills councils. The claim that employability skills are truly generic is therefore debatable. In line with recent research into the failures of the Employability Skills Framework (Hutchinson 2012; Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education 2013), the findings from this study indicate 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' (p.6). These skills are organised into three clusters: navigating the world of work; interacting with others; and getting the work done (Hutchinson 2012, pp.3–6). The Australian situation is further complicated by an increasingly market-driven 'user choice' training system, comprising many privately owned registered training organisations (RTOs) and employer-operated enterprise training organisations (ETOs), with wide discretion on whether and how to apply training packages. Through these institutions, employers have increasingly sought to develop narrowly defined skill sets. (See Gekara et al. 2014 for a discussion on the skills quality implications of these practices.)

The construction of employability skills has changed over the years since the Mayer (1992) 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, irrespective of whether or not trainees have actually been trained in these skills, the assumption is that they are covered by virtue of their certification. Therefore, although transferability of these employability skills is a core intention of the system, the ability of qualification holders to apply them in different work contexts across industries and occupations should not be taken for granted.

The ability of qualification holders to apply their [skills] in different work contexts across industries and occupations should not be taken for granted.

Assessing transferable skills development within the Australian VET system

In assessing transferable skills development in the Australian VET system, we have set aside the issues of user choice and training flexibility, which are built into the Australian training system and which, as indicated above, have implications for how transferable skills are developed in practice. Instead, we focus on how the training content contained in different qualifications facilitates or impedes the development of transferable skills and occupational mobility. The qualifications chosen for this exercise corresponded to selected pairs of growing and declining occupations at skill levels 3 to 5, as identified in the ABS Census data. The assessment was subject to two levels of analysis. The first took a skill-level approach, whereby the skills content of qualifications was examined, drawing upon the European Commission's (EC) transferable skills framework. The second approach adopted an occupational cluster analysis and focused on the units of competency contained within qualifications and the transferability of these units of competency within and between occupational clusters and other qualifications. The details of these two approaches and their research findings are discussed in the following sections. (See support document 2 for full discussion.)

Skill level analysis

Skills are commonly characterised as either technical or non-technical, or similarly, soft or hard in nature. Non-technical/soft skills are considered relatively transferable, while technical/hard skills are occupation-specific and non-transferable. In a major study conducted by the European Commission in 2013 this categorisation of skills was expanded to include three categories of skills (p.22):

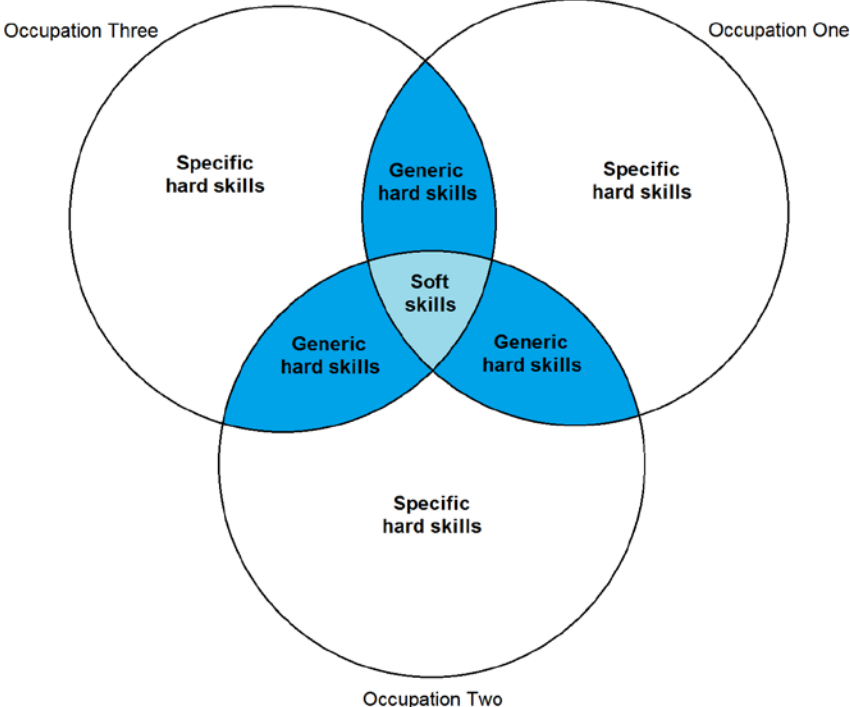
- *Soft skills*: non-job-specific skills that relate to an individual's ability to operate effectively in the workplace. These skills are usually described as perfectly transferable. The five clusters of soft skills identified were: personal effectiveness skills; relationship and service skills; impact and influence skills; achievement skills; and cognitive skills.
- *Generic hard skills*: these are technical and job-specific abilities that can be applied effectively in almost all jobs in a majority of companies, occupations and sectors, and personal life. They 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; information and communications technology skills/e-skills; and communication in foreign languages.
- *Specific hard skills*: these are technical and job-specific abilities that are applicable to 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' (European Commission 2013, p.9). Figure 1 illustrates the transferability potential of the European Commission'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 European Commission’s skills transferability framework, ‘skills which are transferable across the economy’, that is, skills applicable to different occupations in different sectors, can be classified most accurately under a ‘transversal skills’ heading. According to the European Union, 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). In the Australian VET context, the equivalent of the European Commission’s category of transversal skills is a combination of foundation skills, that is, learning, numeracy, oral communication, reading and writing skills, and the eight key employability skills.

Using the European Commission framework to designate the skills developed through qualifications on a scale of least-to-most transferable and to make a judgment about their transferability potential would make an interesting and worthwhile exercise. However, the examination of where displaced workers in declining occupations in Australia could use their skills in growing occupations was a key aim of this project, necessitating a cross-occupation comparative analysis of skills profiles. Thus, we compared six pairs of occupations (three declining and three growing), identified through the analysis of ABS census data. In this analysis, the European Commission framework provides the foundation for our initial understanding of skill types and their prima facie transferability potential.

Figure 1 Disposition of soft, generic hard and specific hard skills in occupations



The analysis considered three different sets of occupations, with each set containing an identified growing and declining occupation, and different degrees of variance in the types of job roles and task composition between the two chosen occupations. The first set of compared occupations share a great commonality: secretaries (identified as a declining occupation) and personal assistants (identified as a growing occupation). These two occupations utilise the same training package and qualification: Certificate III/IV in

Business Administration. From a training package perspective, the variation in the 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. Given that these two occupations perform very similar tasks, employ many of the same skills, and have the same corresponding qualifications, the skills transferability and occupational mobility between them is likely to be very high. This comparison suggests that secretaries should be able to fit easily 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 on our skills diagram (figure 1), the number of generic and specific hard skills shared between these two occupations would be high. It is likely that one of the defining differences between the two occupations is that personal assistants would be expected to have additional specific hard skills related to performing the roles of planning, leadership and mentoring. Thus, their jobs would contain a few differentiating specific hard skills.

The second set of occupations examined included two slightly different occupations: wood machinists (identified as a declining occupation) and joiners (identified as a growing occupation). These two occupations were chosen for analysis due to their similarity in job role and tasks and because the consequent qualifications differed. 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. Similar soft and generic hard skills are found in these two qualifications. For example, both qualifications emphasise the importance of generic hard skills related to working with technology safely and according to workplace standards; identifying and reporting problems; and completing written documents, forms and timesheets. Even among the specific hard skills contained in these two qualifications there are similar skill expectations: the ability to use similar hand tools and the measurement, cutting and construction of materials. What this comparative analysis indicates is that there is a high degree of transferability between these two occupations but not as high as that of secretaries and personal assistants. We can therefore also infer that a displaced wood machinist may find it relatively easy to perform joinery work with some additional training.

The third set of occupations included two very different occupations: shearers (identified as a declining occupation) and chefs (identified as a growing occupation). Workers employed in these two occupations are located in very different workplaces and are expected to perform very different tasks and job roles. The qualifications most commonly associated with each of these occupations are also from two very different training packages. Shearers are expected to have a Certificate IV in Shearing, while chefs require a Certificate IV in Commercial Cookery. To establish whether the skills developed in the training for a shearer may assist the worker in finding a job as a chef, we again considered the similarities and differences between the soft, generic hard and specific hard skills contained in these two qualifications. As expected, there was a significant similarity at the level of soft and generic hard skills related to working in teams, problem-solving and applying numeracy skills, but very little overlap between the specific hard skills developed in the two qualifications. This indicates that there would

be little chance for worker mobility between the two occupations without significant retraining.

An important finding of this analysis is that, in reference to the employability skills noted in the Certificate IV in Commercial Cookery, it is clear they in fact cut across both the generic hard and specific hard skills categories. Drawing upon the communication employability skill, for example, chefs are expected to hold specific hard skills that enable them to 'instruct kitchen staff to adjust food items to meet quality requirements and organisational standards' (Department of Education and Training 2015). This means that, although employability skills are commonly perceived as soft skills and can be applied to most occupations, here they have been developed in a very specific way, which has rendered them transferable only between a very small number of closely related occupations. Therefore, the data indicate that, while skills transferability is predicated on employability skills, they are not infinitely transferable, as commonly presented.

The comparison of three sets of occupations using the European Commission framework showed that the more distant the two occupations are from each other in terms of job role, tasks and training package used, the less likely it is that these occupations will maintain shared skills at the level of generic hard and specific hard skills. Skills transferability and occupational mobility, therefore, should be considered in relation to families or clusters of occupations, which draw upon similar skills and knowledge. This finding informed the second approach to assessing skills transferability in the Australian training system.

Occupational cluster and unit of competency-based analysis

The second approach utilised an occupational cluster and unit of competency analysis to examine the skills transferability potential in the Australian training system. In the Australian context, the tendency has been to associate and understand occupations in relation to industries. This partially reflects Australia's institutional history, in which skills assessment and training for particular occupations was developed by industry-based skills councils. In many cases, however, occupations are not easily located in specific industries and are often found in multiple industries (for example, management and clerical-related occupations).

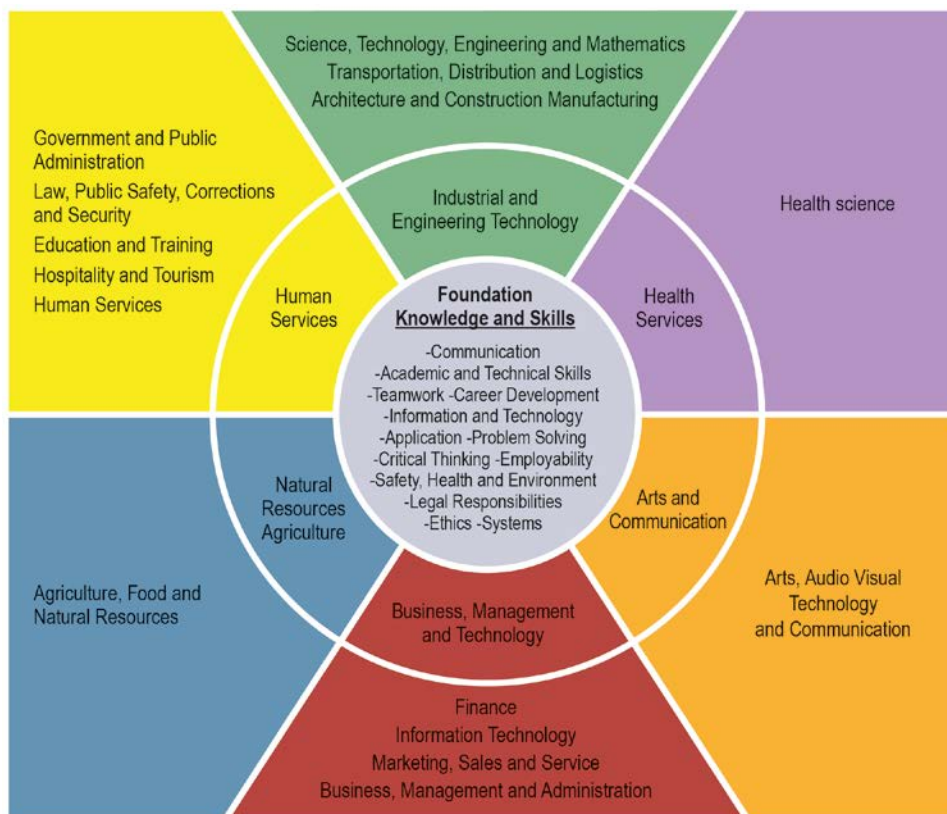
Industry-based approaches to understanding occupations also tend to limit how occupations are conceptualised in relation to other types of occupations. In recognition of these limitations, it is relatively common in countries like the United States (US) to consider occupations as belonging to 'families' or 'clusters' located across industries. These occupational clusters contain certain elements (for example, skills, knowledge, tasks, activities, desirable employee attributes) which are common to 'groups' of occupations (Venn 1969; Frantz 1973).

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' occupational mobility across groups of occupations and in aligning vocational education and training with local economic and workforce development priorities (see Miller 2008; Janowski et al. 2009). Within this framework, there are 16 nationally recognised career clusters identified as having a common level of knowledge and skills (see figure 2).

The data indicate that, while skills transferability is predicated on employability skills, they are not infinitely transferable, as commonly presented.

Workers with the skills, knowledge and competencies common to a particular cluster will find it easier to transition into other occupations located within this cluster.

Figure 2 Occupational clusters



Source: Jared (2008); O*Net website.

While all occupations require certain essential knowledge and skills (that is, core skills), the cluster-level knowledge and skills set is built on a common core required for career success within a group of similar occupations. The more distant two occupations are from each other in terms of job role, tasks and training package used, the less likely it is that these occupations will have shared skills. This shared core consists of various elements and core competencies 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 (that is, specific hard) skills (Hamilton 2012). The implication for occupational mobility is that workers with the skills, knowledge and competencies common to a particular cluster will find it much easier to transition into other occupations located within this cluster than into occupations located outside the cluster. (For further discussion of the transferability of technical skills between occupations which share an affinity to one another; that is, they are located within the same cluster, see support document 2.)

Drawing on this knowledge, we examined the transferability potential of competencies developed in the Australian VET system. The procedure involved locating selected growing and declining occupations for skill levels 3 to 5 within occupational clusters and utilising the occupational cluster framework of the O*Net database. O*Net was developed through the auspices of the US Department of Labor/Employment and Training Administration and is the primary source of occupational information for identifying the location of all occupations within the 16 career clusters (O*Net 2015). While the research team acknowledges 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 are therefore considered appropriate for the purposes of identifying occupational clusters in the Australian context.

Following the identification of clusters for our selected growing and declining occupations, the qualifications associated with them and their core competencies were documented and examined. This examination involved considering the degree to which core units of competency for each qualification were shared by other qualifications and identifying the types of occupations and occupational clusters associated with these various qualifications. If it was established that many qualifications used the same unit of competency, 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 used them, a clearer picture of the level of transferability of the qualification as a whole could be established; the types of occupations where the potential for employment mobility would be most feasible could also be identified.

Three key findings emerged from this occupational cluster and unit of competency analysis. (See support document 2 for additional findings.) First, the assessment highlighted significant differences in the sharing of units of competencies among qualifications, suggesting that some certificates provided a higher potential for occupational mobility than others. For example, the core units contained in the Certificate III in Engineering were shared on average by 45 other qualifications, whereas the Certificate IV in Credit Management averaged only seven other qualifications.

Second, the analysis showed that qualifications tended to share units of competency with similar occupations in the same occupational cluster. It was not uncommon, however, for units of competency to be shared between quite dissimilar occupations in different occupational clusters. For example, core units of competency for the Certificate III in Engineering were shared with the medical technician occupations from the health science cluster and the organisation and methods analysts occupation from the business, management and administration cluster. The Certificate IV in Retail Nursery shared its core units with six other occupational clusters, illustrating skills transferability across a diverse range of occupations.

Third, the findings indicate that in many cases units of competency that clearly developed generic hard skills, therefore having the potential to be highly transferable, were not spread across a large number of qualifications (for example, 'Plan and organising work', and 'Conduct workplace communication' in Certificate III in Joinery; 'Plan a complete activity' and 'Plan to undertake a routine task' in Certificate III in Engineering; and 'Work safely', 'Communicate in the Workplace', and 'Work in a team' in Certificate III in Timber Composites Machining). Since countless qualifications and occupations rely on skills associated with communication, planning and organising work, and working safely, it is somewhat surprising that they have not been developed in a more transferable way. These findings suggest that the VET system and the current design of training packages may not be facilitating transferability at the level of competency to its full potential and in ways that contribute to the development of generic competencies that can be used not only within an occupational cluster but across any occupation.

The VET system and the current design of training packages may not be facilitating transferability to its full potential in ways that develop generic competencies that can be used across any occupation.

Opportunities for occupational mobility are going to be the least challenging if the transfer is sought from occupations within the same occupational cluster and same skill level.

The analysis provided further evidence that there are opportunities for workers located in declining occupations to take up employment opportunities in growing occupations and that 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 the transfer is sought from occupations within the same occupational cluster and same skill level. The findings suggest, however, it would be highly unusual for some additional training or upskilling not to be required. We could only find a few cases among the identified declining and growing occupations where little or no additional training would be required for occupational mobility. 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 nursery persons and gardeners who are in similar lines of work in the same occupational cluster. The results of the analysis, however, also indicated that there are barriers in the design of the training system – including its industry-based orientation – which are limiting the capacity for effective skills transferability and occupational mobility.

Transferable skills among retrenched and vulnerable workers

The process of identifying and utilising transferable skills in the context of company closure and worker retrenchment is examined in the context of the occupational changes described above. As explained earlier, occupations located in the service-oriented sectors, including hospitality, health care, retail and education and training, have grown while those in manufacturing have declined. The question then is: what happens to the retrenched workers and do they have skills that can help them to obtain work in these new workplaces? We address this question using interview data collected as part of the case studies at Geelong and Latrobe Valley. A number of companies were utilised in the case studies, including Ford Motor Company and Alcoa Alumina in Geelong and power stations across the Latrobe Valley, including Energy Brix, Yallourn and Hazelwood Power Stations. The interviews involved retrenched and soon-to-be retrenched workers from these companies, as well as representatives from a wide range of participants in the transition process, including employers, unions, training providers, job support agencies and state government officials. (For more details on the case studies refer to support document 3.)

The argument pursued here is that the concept of skills transferability must be understood by all these key players, especially the affected workers, their current employers, future employers and training providers, as well as job support agencies, whose role it is to ensure that retrenched workers are appropriately transitioned to new jobs. Such understanding will ensure that the different players can undertake their roles, as illustrated in figure 3, to the greater benefit of not only the workers but the economy at large.

Figure 3 Redundancy and the actors involved in employment transition



Workers' understanding of their skills is informed by the nature of their employment and the amount of accredited training they have undertaken.

Workers' understanding of their skills

Workers' understanding of their skills and the potential for their transferability would appear to be informed by the nature of their employment and the amount of accredited training they have undertaken. The study identified three different categories of workers, each possessing distinctive skills, qualifications, and labour market experiences that ultimately impacted on their skills transferability and occupational mobility potential. These categories are direct company employees, indirect contractor employees and company casual employees.

Those in the first category invariably held the most secure and best remunerated positions. They had also generally only worked in the same industry and for a single employer for many years, in many cases, all of their working lives. As a result, they

For direct company employees, the concept of transferability of skills had never been an issue because they had never considered the possibility of changes to their employment status.

tended to be unskilled or semi-skilled and often had no formally recognised qualifications. On the other hand, those in the second category, employed by contractors, tended to have nationally recognised certificates and trade qualifications and had generally worked for many employers across several industries. Their jobs tended to be less secure, as they typically only lasted for the duration of the firm's contract with the parent company. The third category of workers, that is, casual employees, typically performed specialised work for either the contract firms or the parent company mostly on a needs basis. The remuneration for this casual work is significant, but the work is short lived. Casual employees would also have experienced multiple employers across different industries. These categories were much more defined in the Latrobe Valley power plants than at Ford in Geelong, which tended to employ direct and permanent employees.

We found that those in the first category struggled most with articulating the full extent of their skills and their transferability. Because of the relative stability of their employment over a long period of time and the perception of long-term employment security, these workers had never consciously considered the significance of any of their skills beyond the immediate workplace requirements. For this reason, few had ever bothered to acquire formally accredited training and so held no qualifications. Most of the training they had undertaken had occurred on the job and was mainly geared towards facilitating execution of their immediate manufacturing tasks. This does not, however, mean that they did not have any transferable skills; rather, it means that the concept of the transferability of skills had never been an issue because they had never considered the possibility of changes to their employment status. Furthermore, the transferable skills that some possessed had never been formally accredited. Our analysis indicates that many of the skills held are transferable, including those related to occupational health and safety, workplace training coordination, general employability skills such as teamwork and communications, and those related to work ethics and attitudes. These workers, however, think of their skills from the restricted viewpoint of technical manufacturing skills and, considering that manufacturing occupations are generally in decline, they see no possibility of occupational transfer.

Another important characteristic of this category of workers is that they lack an understanding of the current labour market. Since they have never needed to look for work, they possess few, if any, labour market navigation skills, including the basics of job search, job application and job interviews. As described by transition managers and some of the workers, many of them feel overwhelmed and do not know where and how to begin looking for work. Although this description applied to the majority of the workers in this category, there was a small number who were clearly different, in the sense that they were able to articulate the full extent of their skills; they recognised the transferability value in them and possessed formal qualifications for the training they had received over the years. These belonged to a sub-category primarily distinguished by their level of skills. While the main category comprised unskilled or semi-skilled workers, this sub-category comprised those employed in occupations requiring higher skill levels, that is, from junior management upwards.

Category two workers, that is, those who worked for contract firms, possessed a very clear understanding of their skills and were able to articulate their transferability value clearly. This is largely because the nature of their employment meant that they were

always on the lookout for the next job. Furthermore, they were mostly equipped with qualifications that enabled them to work across sectors and occupations. As a result, these workers tended to be highly skilled in navigating the job market. The third category of workers bear similarities to the second, but only in as far as their jobs are not as secure, and they have some experience in changing jobs frequently. The key difference, however, is that while the former have highly specialised skills (mostly trade) and tend to be highly trained, the latter are more unskilled or semi-skilled and lack formal qualifications. They tended to stay with the same employer as casuals for long periods in the hope of ascending to a permanent position. Like those in category one their understanding of their skills was restricted to those in their specific job, in this instance, manufacturing.

This method for categorising workers, which also recognises how they perceive their own skills, becomes an important tool for those assisting workers to obtain new jobs after their retrenchment.

How training and employment support actors understand and utilise workers' existing skills in the transition process

The study finds that a wide range of actors are involved in the efforts to transition retrenched workers into new jobs and, as earlier explained, successful transition processes require that these players possess an in-depth understanding of the skills that the retrenched workers possess in relation to the job market. This understanding inevitably involves an appreciation of the transferability value of the skills possessed at the point of retrenchment. A significant amount of time and money is therefore required to conduct a thorough and extensive skills and job market analysis before any definitive advice is given about the availability of appropriate job opportunities, extra training required, and what recognition of prior learning (RPL) should be implemented. This should be informed by a thorough analysis of the worker's existing skills.

The transition outcomes in the cases analysed vary significantly. The analysis suggests that the main reason for this variance is not a lack of financial resources, but rather the limited amount of time spent on skills and job market analysis and, perhaps, a lack of a clear understanding of the concept and practice of skills transferability on the part of many transition facilitators. Unfortunately, in only one of these companies – Ford Motor Company – was the transition allocated sufficient time and a comprehensive process put in place. In the remainder of cases, the process was largely haphazard, resulting in workers receiving support and training advice which contradicted the job situation in the region.

To begin with, at Ford the transition process was allocated three years, during which an elaborate consultative process was installed to evaluate workers' skills and where they might find new jobs. In cases where the skills were not sufficiently transferable, based on regional skills demand, further training was recommended. The outcome of this evaluation formed the basis for all advice on where the workers should target their job search. The result was a heightened atmosphere of optimism about employment opportunities post-retrenchment.

This transition process stands in contrast with the situation in all of the other cases. Even within the same region, Geelong, the Alcoa transition was poorly organised and

Successful transition processes require an in-depth understanding of the skills that the retrenched workers have in relation to the job market.

The transferability value of the skills that disadvantaged workers possess is often overlooked by employment facilitators, who view them from a predominantly technical perspective.

hurriedly executed with unsatisfactory results. In the first instance, the entire exercise was allocated approximately six months, which did not enable any meaningful skills and job market analyses, and led to workers being forced into training courses for qualifications (Construction white cards) for jobs that did not exist. The outcome, as recounted by workers and union representatives, was great trauma for the workers, many of whom never managed to secure good, or any, jobs.

In the case of the Latrobe Valley, retrenched workers across the different companies studied faced situations not dissimilar to those at Alcoa. However, they suffered the additional disadvantage of having neither the time nor adequate funding set aside to assist them in their transition. For reasons interpreted by unions as indifference on the part of industry and government, these workers seem to have been mostly left to their own devices. The little assistance provided under the Victorian Government's 'Workers in Transition Program' (WITP) lacked the rigour evident in the Ford transition. Furthermore, as newly retrenched workers, the workers were given little, if any, attention because of the last-in-least-supported approach adopted by Jobactive providers, based on the prevailing federal government job support funding arrangements. While they were provided with some opportunity to undertake RPL and attend information sessions prior to being retrenched, there was limited post-retrenchment support for these workers. In contrast, a Workforce Development Centre had been established in Geelong to provide supplementary assistance for stream one job seekers² – as were the retrenched Alcoa workers – which provided assistance in areas related to resume writing, career advice and counselling, as well as information on regional employment opportunities. No equivalent operated in the Latrobe Valley.

Another important finding relates to how these transition actors perceived the workers' existing skills and whether they utilised them in finding them new jobs. Once again, in this respect, the Ford transition team differs significantly from the rest. Most of the transition players at Alcoa and the companies in the Latrobe Valley recognised little transferability value in any of the skills possessed by the workers. This seems to be a result of the way they viewed skills, which appears to be from a predominantly technical perspective. When looking for other applications for the workers' existing skills, many only considered their technical manufacturing or power plant skills and saw no possibility for transferability. The most common advice disseminated was therefore for wholesale retraining and, in most cases, with little regard for job type and where they were available. In some cases RPL was offered for manufacturing and power plant skills, whose currency was in decline.

In the Ford case, however, the process seems to have focused very much on the 'other skills' possessed by workers and which could be used to find new work. As opposed to prescribing training courses, case managers took the workers through a one-on-one

² Jobactive providers categorise unemployment cases depending on how long the worker seeking assistance has been out of a job. Stream one job seekers are those who are recently unemployed, while those in stream two are long-term unemployed. More support (state funding) is allocated for the latter. Thus the Jobactive providers have developed the last-in-least-supported approach because they get more money for providing support to longer-term unemployed.

process of self-discovery of the full range of skills possessed. As a result, the workers interviewed were able to identify future job opportunities in new and non-manufacturing-related occupations, such as health care, training and hospitality. Some considered entrepreneurship. Most were able to articulate a range of skills, which included hard technical and the more generic employability skills. By comparison, at Alcoa and the power plants in the Latrobe Valley, workers and some of the Jobactive providers saw no transferability in their skills.

Interviews with employers in the region, some of whom had participated in the information sessions as part of the transition assistance process, confirmed that generic non-technical skills are the key to employment mobility. This view confirms the findings in the literature related to occupational cluster mobility: hard specific skills can be transported across a limited family of related occupations, but soft and generic skills are capable of much broader transferability. Furthermore, employers explained that personal skills, those associated with work ethics and attitudes towards workers, were becoming a major consideration when recruiting new workers.

Employers confirm that generic non-technical skills are the key to employment mobility.



Implications and considerations

Findings from this report lend further support to the view that transferable skills perform an invaluable role in an employee's cross-occupational mobility (Partridge, K, Chapman & O'Neil 2009; European Commission 2013; Mayer 1992; Misko 1998; National Quality Council 2010; Skills for Jobs 2013; Sweet 2009). The research has demonstrated that a number of factors must be taken into consideration when understanding skills transferability and occupational mobility. First, the development of transferable skills is determined by both the training system and the manner in which workers and employers engage with this training system. An employee who acquires only skills sets, for example, will be unable to develop transferable skills in a similar way to those who receive full qualifications.

Second, transferable skills tend to be either soft skills or generic hard skills and are applicable to a range of occupational contexts. However, differences in relation to the particular skills and knowledge required to perform different tasks associated with specific occupations mean that some skills are more transferable to some occupational contexts than to others: a wood machinist is going to find it much easier to become a carpenter and joiner than to become a chef.

Third, local labour market demands for particular skills and types of occupations have significant implications for a worker's prospects in applying the skills they developed in one occupational context to another occupational context. If a worker's transferable skills are aligned with growing occupations in similar occupational clusters, in which many of their existing skills could be used, they are going to be in a much better labour market position.

Fourth, the ability to make use of transferable skills for cross-occupational mobility is highly dependent on how well the worker – and those who assist them to find employment – understands these skills and the role they perform in cross-occupational mobility. The implications of these broad research findings lead to the following policy considerations.

Greater recognition and promotion of transferable skills

Both soft and generic hard skills perform an important role in cross-occupational mobility. Employers are interested in: people with communication, team working and critical thinking skills; who have the capacity to learn and adapt quickly to new employment settings; and who possess other employability attributes, such as attitudes towards work and others. Making use of transferable skills for the purposes of employment mobility, however, requires a level of understanding about these skills by the workers themselves and by those seeking to assist them in finding alternative employment and making decisions about career options. Our case study research suggests that many workers do not understand the role and importance of transferable skills in cross-occupational mobility.

While training providers and employment facilitators generally understand the importance of soft and employability skills for workers in contemporary labour markets, it appears that this information is often not well explained to the workers and job

seekers they are assisting to make employment and training choices. There appears to be ample opportunity for those involved in the training system and in employment facilitation to perform a much more educational role in assisting workers to understand the importance of generic hard and soft skills in occupational mobility, along with the available broader employment opportunities beyond those constrained by technical hard skills. Some of the most successful worker-in-transition programs are those that assist workers to: recognise these non-technical skills; understand how they have been developed in the workplace and non-workplace settings; and recognise the value of these skills in improving their chances of transitioning to other areas of employment. It is suggested that workplaces considering workforce downsizing and retrenchments should include such advice and support in their worker-transition programs.

Some of the most successful worker-in-transition programs are those that assist workers to recognise their non-technical skills.

Promoting accreditation of skills

Transferable skills are developed through formal and informal training and through learning to perform the tasks associated with a particular occupation. The ability to formally identify transferable skills is made much easier when skills and competencies are fully accredited. Workers without qualifications are not only disadvantaged in a labour market where credentials perform a greater role, but they are also less able to articulate the full depth and breadth of their skills to other employers and the individuals associated with employment facilitation and the training sector. The appropriate accreditation of skills through RPL or other forms of assessment prior to, or soon after, retrenchment, is certainly an important step to overcoming some of the challenges that retrenched workers in this category are likely to confront when searching for new job opportunities. Employers should therefore constantly encourage and support their workers to develop these skills through formal accredited training, in order to prepare them for easier transition to the next job.

Improvements to training packages and the training system

The design of the Australian VET system, more specifically training packages, has ramifications for the development of cross-occupational transferability potential. Employability skills sought to formally articulate the transferable skills are being developed within qualifications. The findings from this study suggest that, while qualifications developed employability skills, they often did so in occupation-specific ways, which limited their transferable potential. In addition, units of competency that sought to develop soft and generic hard skills applicable to a wide range of occupations were not as widely shared between qualifications as one might expect. Instead, these units of competency were often duplicated between training packages and qualifications, contributing to unnecessary complexity. The evidence indicates that employability skills should be made more applicable to all workplace contexts, and that the units of competency that aim to develop the same set of soft and generic hard skills should be rationalised as a way to improve the manner in which transferable skills are developed in the VET system. Furthermore, the establishment of a common language to describe competencies, skills and knowledge will render the contents of qualifications and training packages easier to understand across industry boundaries, educational institutions and training bodies, and among policy-makers and employers. Given that the current Australian training system is being redesigned, including the removal of explicit

Better tools need to be developed to improve our understanding of the skill and knowledge associations between different types of occupations.

reference to employability skills, these insights should be given considerable consideration.

Increased awareness and understanding of occupational clusters

Skills transferability and occupational mobility vary between categories or families of occupations, which often extend beyond industry classifications. Better tools need to be developed to improve our understanding of the skill and knowledge associations between different types of occupations. The evidence suggests that an occupational cluster framework, similar to the US's Career Cluster model (O*Net 2015), could be usefully developed for the Australian context. An occupational cluster framework enables employees to compare their skills with an occupation outside their industry, effectively expanding their ability to assess all of their job opportunities and signalling where most of their existing skills could be applied. The utilisation of such a framework has the potential to minimise the need for training new employees, thereby reducing cost and the squandering of existing skills and qualifications. The development of a database that comprehensively maps the skills of each occupation within their corresponding cluster would provide an invaluable profiling tool for those advising trainees on suitable training programs and those assisting workers to find employment. This type of occupational comparison is currently not well understood in Australia, although the adoption of such a framework could be of some benefit not only to young people and displaced workers but also to schools, business and industry.

The career cluster approach could also be adopted in the development of training and qualifications to facilitate the understanding of the relationship between families of occupations and their common skills and knowledge, as well as to increase the transferability of skills within clusters. The career cluster framework, therefore, is a useful way to align curriculum and create school-to-work pathways that lead to employment in related pathway occupations in similar ways as the recently proposed 'vocational streams' (see Yu, Bretherton & Buchanan 2013).

Improved occupational and labour market analysis

Local labour market conditions, including changing demands for types of skills and occupations, have significant implications for occupational mobility and job prospects. Australian regions tend to be highly cellular, displaying different patterns of occupational growth and decline. Comprehending these regional labour market particularities is thus critical to assisting workers in occupational transition. Comprehensive regional labour market assessments should be conducted regularly to highlight where skills and occupations are growing. This knowledge can be used by those involved in the training system and in job market facilitation to assist workers to: better identify viable job and career opportunities; make more informed decisions about how best to approach RPL; and retrain and upskill to deliver the best job outcomes. This information can also be accessed by employment facilitators to ensure that the best job outcomes are delivered to workers in transition. Such a process could be modelled on the transition practices executed by the Ford Transition Program (discussed earlier in the report and in more detail in support document 3).

The development of a coordinated and collaborative worker in transition program

The effectiveness of workplace transition programs is dependent on the management of the process and the allocation of resources. An effective program is one in which the various actors engage in a comprehensively coordinated process to: identify the full extent of workers' skills; provide accreditation training where needed; and determine where they should seek employment. A significant amount of time is required to hone workers' job-search skills, since many employees exiting declining industries and occupations lack labour market experience. When employers attempt to perform all of these transition tasks in a short period of time, the results are often ineffective with the difficult and traumatic nature of retrenchment often impacting on a worker's ability to properly engage with the process.

Government-funded programs, such as Victoria's Workers in Transition Program, often fail to provide such assistance, merely offering soon-to-be-retrenched workers information to assist them to navigate the transition process and often only when they are invited into the workplace. In order for a workers-in-transition program to be effective, it must have adequate employer and government support, and be well organised, well resourced, and well managed. In addition, it is imperative that the various parties involved in training and in employment support during the transition process aim to provide appropriate advice that benefits individual workers. Attempts by private training providers to promote specific programs that are unsuitable for local labour markets, and the efforts of job support agencies to place workers in any and often inappropriate employment limit the effective capacity of disadvantaged workers to transition to new and meaningful employment. In this vein, the current last-in-least-supported approach which underpins Jobactive government funding arrangements may need to be reconsidered.

A significant amount of time is required to hone workers' job-search skills, since many employees exiting declining industries and occupations lack labour market experience.



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The NVETR Program is based on national research priorities and aims to improve policy and practice in the VET sector. The research effort itself is collaborative and requires strong relationships with the research community in Australia's universities and beyond. NCVET may also involve various stakeholders, including state and territory governments, industry and practitioners, to inform the commissioned research, and use a variety of mechanisms such as project roundtables and forums.

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