



## Skills utilisation in the workplace: the other side of the coin – support document

Tabatha Griffin  
NCVER

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Level 5, 60 Light Square, Adelaide, SA 5000  
PO Box 8288 Station Arcade, Adelaide SA 5000, Australia

Phone +61 8 8230 8400 Email [ncver@ncver.edu.au](mailto:ncver@ncver.edu.au)

Web <<https://www.ncver.edu.au>>

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# Literature review

## Introduction

Australia has endured a long period of poor productivity growth, as have many other advanced nations (Productivity Commission 2019). The importance of skills in increasing productivity and economic growth, as well as the changing nature of the workforce and job skills requirements, has meant that skills have long been a focus of policy-makers. In the midst of the global coronavirus pandemic, the discussion of skills has become even more central, with the need to adapt to a faltering and uncertain economy.

Historically, much of the policy focus on skills in workforce development, both in Australia and internationally, has been on skills supply. This has traditionally been addressed through boosting the number of people with vocational or academic qualifications. However, it has been argued that skills formation, alone, is not sufficient for economic growth (Russo 2015). Another piece of the puzzle is ensuring that these skills are used in the workplace. In 2015, the Organisation for Economic Co-operation and Development (OECD) suggested that, not only are further efforts required in all G20 countries to fully equip their populations with the skills needed in increasingly dynamic and interdependent economies, but there is also a need to ensure these skills are used effectively in the labour market. Indeed, it is estimated that as many as three in five workers in the OECD are in jobs that do not make the best use of their skills (Forti, Meierkord & Vandeweyer 2019). It has been proposed that, for improved innovation, enterprises need to not only identify, build and mix the skills and capabilities, but they need to think about how these skills are brought together within organisations, industries and innovation ‘ecosystems’ (Cunningham et al. 2016). This requires the creation and design of jobs that make the most of workers’ skills. Hence, together with skills development, skills utilisation is a key component of workforce development.

This literature review examines skills utilisation in the workplace. While the policy and research foci are not as large as that on skills development, over the past several years there has been a modestly increased interest in Australia on skills utilisation in the workplace, reflecting a call to broaden policy from purely increasing the supply of skills to also enabling increased utilisation (Skills Australia 2012). In Australia, strong competition for skills, challenges with recruitment, and skills shortages (particularly in tight labour markets) have all been drivers of skills utilisation efforts (Skills Australia 2012). More recently, the impact of the coronavirus pandemic on businesses, such as reduced staffing levels or the diversification of products or services provided, may also necessitate an increase in efforts to improve skills utilisation.

By comparison with Australia, the concept of skills utilisation has perhaps received more attention in other countries. Much of the early work in this area originated in Scotland (Warhurst & Findlay 2012) but has since experienced an increase in interest more broadly in the UK, including by government (Keep 2016). The UK Commission for Employment and Skills (2014) argues that the effective use of skills is critical to maximising productivity and supporting economic growth.

This literature review details the reasons why the consideration of skills utilisation is gaining traction in Australia and internationally, unpacks some definitional issues around skills utilisation, and discusses the extent of skills underutilisation in Australia and the potential impacts of this. It also considers the potential role of government in attempting to increase skills utilisation within enterprises; provides some examples of initiatives and interventions that have occurred in Australia and overseas, detailing any involvement of government and discusses factors that help to increase skills utilisation.

This literature review makes no attempt to replicate previous literature reviews on skills utilisation. For other Australian and international literature reviews, see Centre for Enterprise (2008), Buchanan et al. (2010) and Skills Australia (2011).

## What does 'skills utilisation' mean?

There is no agreed definition for skills utilisation. Some of the variability in defining the concept may be due to different definitions being used for different purposes, suggesting that a definition for research may be different from that devised for policy (Keep 2016). Complicating the matter is the tendency to use various terms such as 'skills utilisation' and 'higher performance working' interchangeably (Skills Australia 2011). Furthermore, the concept of skills utilisation is not widely recognised amongst employers (Misko & Owen unpublished, cited in Skills Australia 2011; Keep 2016).

The concept of skills utilisation is not just about the use of available skills; it is about *how* they are used. Skills utilisation is shaped by the way in which work is organised, how jobs are designed, and by other human resource practices deployed by businesses (Chartered Institute of Personnel and Development 2018). This broad concept is demonstrated by some of the definitions developed both in Australia and internationally.

For example, a description of the environment that enables individuals to use their skills is incorporated into the working definition of skills utilisation created by the Scottish Government in their extensive work in this area (Keep 2016, p.9). This definition encompasses the people, the workplaces and the desired outcomes:

Effective skills utilisation is about: confident, motivated and relevantly skilled individuals who are aware of the skills they possess and know how to best use them in the workplace.

Working in: workplaces that provide meaningful and appropriate encouragement, opportunity and support for employees to use their skills effectively.

In order to: increase performance and productivity, improve job satisfaction and employee well-being, and stimulate investment, enterprise and innovation.

Another definition used by the Scottish Government also considers the array of people involved in maximising skills utilisation, as well as the various practices required:

Skills utilisation is about ensuring the most effective application of skills in the workplace to maximise performance through the interplay of a number of key agents (e.g. employers, employees, learning providers and the state) and the use of a range of HR, management and working practices. Effective skills utilisation seeks to match the use of skills to business demands/needs.

(Centre for Enterprise 2008, p.2)

Looking at Australia, a similarly broad concept of skills utilisation, which encompasses outcomes that reach further than the individual or the workplace, was offered by Skills Australia (2011, p.4):

Those policies and practices which support people to participate effectively in the workforce and to develop and apply skills in a workplace context, where learning translates into positive outcomes for enterprises, the wider community and for individuals throughout their working lives.

This does not necessarily mean that more skills equals better skills utilisation. Skills Australia (2012, p.8) further explains:

skills utilisation should be understood as all of the manifold ways in which the skills, abilities and aptitudes of employees can be harnessed to benefit business outcomes and, by extension those of individual workers.

Given this current project's focus on investigating the workplace conditions and practices that increase skills utilisation, and aligning with the above definitions, this literature review and associated research consider a broad concept of skills utilisation, one that encompasses the environment to enable optimal skills use, along with the way skills are used and the desired outcomes.

## Related concepts/terms

Other concepts or terms related to, and often also used to describe, skills utilisation include 'skills mismatch', 'overskilled/underskilled' and 'qualification/education mismatch'. Even defining what is meant by 'skills' in the discussion of skills utilisation can be challenging. These concepts are described below.

### *Skills mismatch: overskilled/underskilled*

The term 'skills mismatch' is often raised when considering skills utilisation. Skills mismatches refer to the imbalance between the supply of and the demand for skills, either in aggregate or within any particular occupation or sector (Gambin et al. 2016). In other words, skills mismatch occurs when an individual either has the skills to cope with more demanding duties in their job, referred to as being overskilled or underutilised, or lacks some of the key skills that their role requires, referred to as underskilled (Chartered Institute of Personnel and Development 2018). The situation where a worker's skills are in excess of those required to carry out their current job might also be referred to as a skills surplus (Gambin et al. 2016). Being overskilled in a job is seen as a failure of skills utilisation, as the workers' skills are not being used to the fullest potential (Skills Australia 2011).

### *Qualification or education mismatch*

Overqualification or overeducation is where an individual has a qualification higher than that required for their job. This can be different from (although often coinciding with) a skills mismatch, especially in the higher education sector, where 'knowledge' tends to be considered more often than 'skills'.

Corresponding with the supply-side focus in skills policy over the last decade, the overall workforce has become more educated, with the proportion of workers having VET or higher education qualifications increasing (O'Dwyer & White 2019). Analysis shows, however, that there is some misalignment between the level of qualification gained and the needs for the job, with many workers holding qualifications that exceed the requirements of their occupation (O'Dwyer & White 2019). Although the composition of the Australian labour market has also changed, the level of skills commensurate with the change in the mix of occupations in the labour market has been outstripped by the proportion of people with higher-level qualifications and skills. Note that the reverse can also occur, where some graduates end up employed at a higher level than their intended occupation (Wibrow 2014).

Qualification (or skills) mismatch can also occur horizontally. This occurs where employees are qualified or experienced to a level higher than required for their job but their qualifications or experience are not directly relevant (Gambin et al. 2016). This is sometimes referred to as a horizontal mismatch. Research has shown that this type of mismatch can be quite prevalent, even after the attainment of VET qualifications (Wibrow 2014), which have a much stronger occupational alignment than most higher education qualifications.

Qualifications are often used as a proxy for skills in research investigating skills utilisation. In this scenario, being overqualified or overeducated would be considered the same as being overskilled. The use of qualification level as a proxy is often due to limitations on reliable data for skills (Romero & del Mar Salinas-Jiménez 2018). Qualification level is more easily measurable (for example, comparing the qualification required to do the job with the qualification of the person in the job). It is important to differentiate between the two concepts, however, as there is evidence that educational mismatches are poorly correlated with skills mismatches as a result of the heterogeneity of skills within educational levels (van der Velden & Bijlsma 2017). Additionally, individuals can gain skills that do not result in gaining a qualification via other means, such as learning on the job.

Overqualification, where an employee has a higher qualification than that required for their job, can occur when the level of qualification is used at the interview stage as a signal that the candidate has the required skills and/or knowledge for the job (Chartered Institute of Personnel and Development 2018). In their discussion on employer behaviour in relation to skills and qualifications, Warhurst and Findlay (2012) describe two types of employer demand for skills:

- Type 1, those skills and qualifications needed to obtain the job
- Type 2, those needed to actually do the job.

Employers, faced with an increasingly more qualified pool of applicants, may select workers with better/higher qualifications (as a proxy for higher levels of capability). The effect is that the qualifications required to obtain jobs (type 1) spiral upwards, while the underlying skills in the job (type 2) change more slowly (Warhurst & Findlay 2012). As a result, people have higher qualifications than those needed to do their job, resulting in a qualification mismatch (overqualification) and potentially a skills mismatch (overskilling), where their skills are not being utilised.

Where studies on skills use in the workplace have distinguished between educational and skills-related measures of mismatch, differences in outcomes have been found according to the measure used. For example, Mavromaras et al. (2011) consider the effects of overskilling and overeducation, separately and together, on wages and job satisfaction. They found that being overskilled, rather than overeducated, was the greatest driver of both lower wages and job satisfaction. In another example, Romero and del Mar Salinas-Jiménez (2018) found that educational and skills mismatches are two distinct phenomena with different effects on wages and job satisfaction. Their analyses showed that while both overeducation and skills underutilisation are associated with a wage penalty, educational mismatch seemed to be the main driver. In terms of job satisfaction, the research found that both educational mismatch and skills utilisation had an impact, but in this case the effects of skills use seemed to be greater. Both these studies demonstrate that overeducation and overskilling cannot be assumed to mean the same thing or have the same ramifications.

### *Defining 'skills'*

The definition of 'skills' themselves does not escape uncertainty in the consideration of skills utilisation and collectively they are often only loosely defined. For example, they may be taken to be 'job-specific requirements, vocational competencies, "what employers want" or broadly all of the technical, behavioural and cognitive capabilities required in the workplace' (Chartered Institute of Personnel and Development 2018, p.9).

A slightly more specific definition is used by the OECD (2015), which uses the term 'skills' to encompass a range of competencies, including: foundation skills such as literacy, numeracy and problem solving; knowledge in specific disciplines; soft/generic skills such as collaboration and communication, critical

thinking and creativity or the ability to organise ones work and work independently; and other competencies used to perform firm-specific and job-specific tasks. These competencies can be encapsulated in three different dimensions of skill:

- technical: the capacity to undertake particular set tasks (for example, recognised trade or professional skills)
- behavioural: the personal qualities of the worker to deal with interpersonal relationships
- cognitive: the level and kind of general education and training undertaken by a population to help it understand and act in the world (Mournier 2001).

Policies aimed at improving skills utilisation differ in what skill dimension is of interest: some are concerned with making the best use of available technical capability, while others are concerned with making best use of workers' cognitive capabilities by changing their behavioural skills (Buchanan et al. 2010).

Understanding what is meant by skills is therefore important when attempting to measure skills utilisation or evaluate skills utilisation practices.

### *High performance working practices<sup>1</sup>*

Skills Australia (2011) reported that, at the time of their publication, there had been little research on skills utilisation per se, as it was a relatively new policy focus. Instead, much of the available evidence regarding outcomes of better skills use was extrapolated from studies on high performance working practices (HPWP). This has led to a tendency for the phrases 'high performance working' and 'skills utilisation' to be used interchangeably (Payne et al. 2010; Skills Australia 2011).

High performance working can be described as 'a combination, or combinations, of various work organisation and managerial practices which, when "bundled" together, are thought to improve organisational performance as well as provide a range of positive benefits for employees' (Payne et al. 2010, p.7). These practices tend to fall under the banners of people management practices, business development and management and leadership (Buchanan et al. 2010), although there is no universal agreement as to the specific practices, or combination of practices that are believed to deliver improved performance (Payne et al. 2010). Additionally, how the individual practices are defined, as well as how they are implemented, also vary widely (Payne et al. 2010).

A detailed discussion on high performance working practices is beyond the scope of this literature review but the upcoming section on factors that lead to improved skills utilisation will consider where these practices intersect with increasing skills utilisation. The take-home message here, though, is that while there may be similarities in the implementation and outcomes of high performance working practices and effective skills utilisation, they are not synonymous. In fact, an organisation with good skills utilisation may not be a high-performing organisation.

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<sup>1</sup> High performance work practices are also referred to as high performance work systems (HPWS) or high performance work organisation (HPWP).

## How does the level of skills utilisation affect the economy, enterprises and individuals?

Previous research has shown that skills and/or qualification mismatch, in either direction, may have negative consequences for the individual, for the firm in which they are employed, and for the national economy (UK Commission for Employment and Skills 2014; Rohrbach-Schmidt & Tiemann 2016). This section considers these costs at each of these levels and the benefits of ensuring high levels of skills utilisation.

### Skills utilisation at the individual level

A considerable volume of research has examined the implications of skills utilisation for the individual worker. The negative impacts of skills underutilisation from the workers' perspective that have been identified include:

- wage penalties (Keep 2016; Chartered Institute of Personnel and Development 2018)
- lack of engagement by workers, meaning they're unable to reach their full potential (Keep 2016)
- lower job satisfaction (Mavromaras et al. 2011; van der Velden & Verhaest 2015; Chartered Institute of Personnel and Development 2018)
- higher stress and physical and mental health risks due to limited discretion for decision-making and creativity (Keep 2016)
- higher likelihood of wanting to leave their job (Chartered Institutes of Personnel and Development 2018)
- poorer prospects for career advancement, training and skills development (Chandler Macleod 2014; Chartered Institute of Personnel and Development 2018; Boxall, Huo & Winterton 2019)
- skill atrophy (Chandler Macleod 2014; OECD 2015).

The effect of skills underutilisation on wages has received considerable attention in the research literature. In a study investigating the potential impacts of both skill and qualification mismatches on wages, Mavromaras et al. (2011) found a complex picture, which varied with education level and gender. Overall, they found that most mismatches resulted in a wage penalty. This was particularly the case for those with certificate III/IV vocational qualifications. Countering this, previous research had found that overskilling was less likely for those with certificate III and IV qualifications (probably because of the strong occupational linkages to those qualifications), and that, where mismatch does occur, it is not persistent (Mavromaras, McGuinness & Fok 2009). In an investigation of both education mismatch and skills mismatch (separately and together), it was found that education mismatch resulted in wage penalties for females, but no pattern was found for skills mismatch. The combination of skills mismatch and education mismatch had the strongest effects and was apparent for both genders (Mavromaras et al. 2011).

Examples of wage effects due to skills mismatch and/or education mismatch can also be found internationally. A recent study in Spain found wage penalties for overeducated workers and for workers whose skills are underutilised (Romero & del Mar Salinas-Jiménez 2018). In Britain, Green, McIntosh and Vignoles (2002) also found that workers in jobs who did not utilise their skills experienced lower wages compared with those whose skills were well matched to their jobs. In a comparison between Britain and Australia, Mavromaras et al. (2007) reported that earnings were 12% lower for severely overskilled workers in Britain and 8.2% lower in Australia. In their work in the Netherlands, Allen and van der Velden

(2001) also found that both overeducation and skills underutilisation had negative effects on wages. Closer to home, Boxall, Huo and Winterton (2019) found skills utilisation was positively related to earnings for New Zealand workers.

The mechanism for the wage penalty of skills underutilisation has been explained in terms of productivity. Workers who are working in jobs where their skills are not being utilised hit a ceiling in productivity and hence received lower wages (Allen & van der Velden 2001, cited in Boxall, Huo & Winterton 2019).

Many of these studies investigating wage effects also consider job satisfaction, tending to find lower job satisfaction in mismatched workers (Allen & van der Velden 2001; Mavromaras et al. 2011; Romero & del Mar Salinas-Jiménez 2018). Exploring this relationship further, Boxall, Huo and Winterton (2019) found that skills utilisation is acting as a mediator between job autonomy and positive outcomes such as higher job satisfaction, greater organisational commitment and lower turnover intentions. The authors suggest that these findings imply that higher levels of work autonomy are associated with greater opportunities for individuals to apply their skills and experience.

It should be noted that being overskilled or overqualified for a job does not always lead to workers being dissatisfied with their work. Other characteristics of the job, such as the ability to balance family life with work, job security, shorter commuting time or strong friendships with colleagues, may lead to workers reporting they are satisfied with their work, even if overskilled or overqualified (Mavromaras et al. 2011).

The evidence regarding the impact of skills underutilisation on further skills development is mixed. Russo (2015) showed that a high incidence of skills underutilisation tends to be accompanied by a low degree of skills development among employees. Compounding this, the OECD (2015) reports that skills that are not used in a job will likely atrophy. Indeed, a survey of 258 employees showed that 48% of workers believed that skills underutilisation causes skills depletion (skills becoming rusty), while 33% reported a reduction in the number of job prospects in their chosen career and 8% reported they had become unemployable (Chandler Macleod 2014). Another study, however, found that even for those individuals who started their jobs with more skills than required, 55–75% of cases reported that they had increased their skills level while in the job (van der Velden & Verhaest 2015). The authors concluded that people learn in all sorts of situations, even when the job requires fewer skills than workers actually have.

The overall picture for individuals who are in jobs where their skills are not being utilised is not a positive one. Lower wages will mean the return on their investment in any education and training they have undertaken will be reduced. Lower levels of job satisfaction, engagement and commitment to the workplace are also likely to have negative consequences for the business in which they work.

## Skills utilisation at the firm/enterprise level

The UK Commission for Employment and Skills (2014) reported that effective skills utilisation is beneficial to employers, who benefit from added productivity and ability to move up the value chain. Research has described a range of benefits that can be experienced by enterprises that utilise the skills of their employees:

- increased worker productivity (Romero & del Mar Salinas-Jimenez 2018)
- improvements to innovation, productivity, profitability, staff retention and safety (Warhurst & Findlay 2012; Skills Australia 2012; OECD & ILO 2017)
- decreased skills shortages and gaps and eased recruitment difficulties (Warhurst & Findlay 2012).

It should be noted that it is difficult to directly attribute enterprise-level benefits to the utilisation of employee skills. The benefits listed above could be due, at least partly, to a variety of different business practices, including high performance working practices, which may or may not have been implemented with the goal of increasing skills utilisation.

While it is easy to see why skills underutilisation is a problem for the individual and the government (discussed below), employers may not see it as a business problem (Keep 2016). Overqualification is not likely to be considered a business cost if qualifications were gained within the education system at a cost to the taxpayer or student. Additionally, it may be less onerous for employers to recruit new workers with the required skills, rather than to assess the skills utilisation practices in their organisation.

While overqualification of employees may not be considered a business cost, there is some evidence that employers are aware of the potential implications of this. Employer case studies have shown that employers were mostly reluctant to take on people who were overqualified or overskilled as they believed they were more likely to leave quickly, may have unrealistic expectations of the job, leading to dissatisfaction, and may be more likely to question everything and be difficult to manage (Gambin et al. 2016). Some employers however may not consider higher turnover to be an issue, accepting that it is the natural order of things (and in many industries it is high, regardless) (Keep 2016).

For some employers, having workers with excess/additional skills may be considered a positive outcome of their recruitment (Gambin et al. 2016). The question here is whether they can make use of those skills to the organisation's advantage. It is not clear, however, to what extent employers adapt their working practices to utilise these skills surpluses (Gambin et al. 2016).

There may be a number of reasons why employers do not perceive the lack of effective skills utilisation as a problem. Warhurst and Findley (2012) suggest three:

- There may be a lack of a product market signal about the need to change operations if sufficient profits are maintained with current operations.
- If there are market signals that a firm needs to develop their business, these signals may not be picked up by management (maybe because they lack the ability to interpret those signals) or they may not have the ambition to act on them.
- The timing of the market signals does not fit with the time horizons of management's planning.

Keep (2016) reports that there have been no attempts to determine the costs of poor skills utilisation to businesses. The potential costs of skills underutilisation may therefore be invisible to employers. An absence of clear and relevant information on how poor skills utilisation is affecting an enterprise is likely to result in a lack of action or change unless it is triggered by some external influence, such as a labour market where additional skills cannot be easily recruited. Additionally, employers may lack the skills or resources to establish practices that increase the use of their employees' skills.

## Skills utilisation at the economy level

The literature highlights two main areas of interest in how skills utilisation is considered at the level of the economy:

- how increased skills utilisation increases productivity
- the public cost of training if qualifications and/or skills are not used in the workplace.

Determining the potential impact that skills underutilisation has on the economy is not a simple exercise. Economy-level estimates of the costs of poor skills utilisation are lacking (Keep 2016). In Australia, some

indirect but related observations have been made. Exploring the link between skills utilisation, engagement and productivity, Chandler Macloud (2014) reported that 85% of workers believe they could be 21% more productive every day, representing \$305 billion in untapped productivity. They also report that lack of engagement by workers is estimated to be costing Australian businesses up to \$54.9 billion per year in lost productivity (Chandler Macloud 2014). The potential costs of skills underutilisation, therefore, is not insignificant.

Despite the difficulty in estimating the true cost of skills underutilisation to the productivity of the economy, it is not unrealistic to propose that, if there is a cost to individual businesses, this will flow through to the broader economy. Indeed, the broad consensus is that effective skills utilisation is beneficial to the productivity of the economy as a whole (UK Commission for Employment and Skills 2014). Some empirical evidence for this is provided by an analysis of PIAAC (Programme for the International Assessment of Adult Competencies) data, which showed that the use of reading skills at work accounted for a statistically significant share of the variation in labour productivity across countries (OECD & ILO 2017). A similar analysis at the industry level shows a positive link between skills use and productivity (OECD & ILO 2017).

These examples suggest that underutilised skills in the economy are a lost opportunity to realise higher levels of productivity. In addition to this, unused skills held by those individuals who are either mismatched to their jobs or are not working are a waste of the initial investment in them (OECD 2015). This is particularly salient at the level of the economy where much of the investment in skills, especially for initial training, is subsidised or funded by public monies. There is a need for government to see a return on their investment in skills.

## What causes skills underutilisation?

There are several ways by which skills underutilisation can occur in a workplace or more broadly in the economy. Increasing qualification levels in jobseekers, paired with the potential for employers to choose job candidates with the highest qualifications, is one way skills underutilisation can eventuate. Corresponding with the supply-side focus of policy over the last decade, the overall workforce has become more educated, with the proportion of workers having VET or higher education qualifications increasing (O'Dwyer & White 2019). This has likely occurred at a faster rate than the rate at which jobs have changed, and analyses show that many workers are holding qualifications that 'exceed' the required qualification (and likely, the required skills) of their occupation (O'Dwyer & White 2019).

As described in the previous section, faced with an increasingly qualified pool of applicants, there is a tendency for employers to use qualification levels as an indicator of ability (Chartered Institute of Personnel and Development 2018). Over time, employers may choose job candidates with higher qualifications, even if the skill requirements for the job have not increased (Warhurst & Findlay 2012). Many employers are reluctant to do this, however, if they feel the individual may leave as soon as a better proposition comes along (Warhurst & Findlay 2012). Some employers will appoint the higher-skilled applicant only if it is clear the applicant wants the job and is not using it as a stop-gap measure (Gambin et al. 2016). In the situations where the highest qualified individuals are employed, however, a skills mismatch may occur, potentially leading to skills underutilisation if practices in the workplace do not provide the opportunity for the higher level skills to be used.

Adding to the issue is that qualifications may not be a true reflection of skills level. While completing a qualification is a key mechanism for developing skills, they can also be acquired in other ways, such as through unaccredited training and informal training in the workplace. This reliance on the qualifications

held by job candidates may underestimate the skills that an individual has, but it is much more difficult for employers to assess the actual skills of job applicants (OECD 2015).

Underutilisation of skills may also occur where there is a lack of high-skilled jobs in a preferred sector or geographical location (OECD 2015). Indeed, continued skills supply in an economy that's in a state of low-skilled equilibrium – producing low-value-added goods and services, drawing on low-skill workers (Wilson & Hogarth 2003) – may encourage overqualification (Chartered Institute of Personnel and Development 2014) and overskilling.

The changing nature of jobs can also lead to skills underutilisation. Existing workers may find that the use of their skills declines over time, perhaps resulting from the introduction of new technologies, which accomplish tasks previously performed by workers (OECD 2015).

The above provides examples of how job applicants may end up in jobs that do not require the same level of skills they possess. Whether or not skills are utilised, however, is largely dependent on the practices in the workplace and these issues are discussed in the section on factors that improve skills utilisation in the workplace.

## Measuring skills utilisation

### Approaches to measuring skills utilisation

Measuring the occurrence or extent of skills underutilisation is difficult. This is, at least partly, due to the lack of a clear definition of skills utilisation (Chandler Macleod 2014). Indeed, many attempts have not measured skills utilisation per se, instead measuring uptake of practices in the workplace, or outcomes such as recruitment, retention and staff motivation (Skills Australia 2011).

Adding to the complexity of measuring skills utilisation is that the degree of skills utilisation in a job is not fixed in time – workers can move between the various states of well-matched, underskilled and overskilled (Russo 2015; European Centre for the Development of Vocational Training 2018). The transition between these states can depend on the starting point. Workers who are underskilled when they first join an organisation can become better matched to their job over time, or even become overskilled. Workers who start their jobs as overskilled, however, are likely to remain overskilled (Russo 2015).

In addition to changing over time, skills utilisation is likely to differ across occupations, sectors, regions and countries (Keep 2016) and may be objective or subjective (Romero & del Mar Salinas-Jimenez 2018). These limitations and caveats need to be considered in any measures of the extent of skills utilisation/underutilisation used, particularly if comparing countries, industries, or different points in time.

Despite the challenges in measuring skills utilisation, Payne et al. (2010) argue that it is important to develop measures that can track what is happening, whether at the level of the national economy, sector, region or sub-region, particularly in order to assess any policy interventions put in place.

In their comprehensive review of skills utilisation and its measurement, conducted for the OECD, Buchanan et al. (2010) suggest that the measures of skills utilisation that have been used internationally tend to fall into three categories. These categories are aligned with the three different levels of which skills utilisation can be examined:

- *Individual measures*: worker perceptions of how their skills are used, often collected through Likert-style survey questions. These are limited by an individual's understanding of the skills required for a particular role and provide little information on the *nature* of skills utilisation.
- *Employer measures*: combines data collected from employers and workers, using quantitative and qualitative research methods (including workplace case studies). These tend to be expensive to administer and, hence, not used widely.
- *Population measures*: generated using commonly available labour statistics, at a broad population level (for example, industry or country). Usually defined by some definition of occupation and the assumed qualification/s required, along with the education, training and experience of individuals in those jobs. The assumptions made and adequacy of the data are some limitations of these measures (Buchanan et al. 2010).

Different measures can result in conflicting results. This is because skills utilisation is a multifaceted problem and each of these facets likely require different measures (Keep 2016). This is illustrated by the four measures of 'education–jobs matching' formulated over time by Livingstone, as summarised by Buchanan et al. (2010):

- *Entry credential matching*: refers to the increasing proportion of jobs requiring higher and higher entry credentials and that the credentials being used to screen candidates are often in excess of the skills requirements of the job.
- *Performance matching*: refers to the skills levels of workers compared with the skills levels required to do the job.
- *Field of study matching*: refers to the relevance of the area of preparatory education or training to the job requirements.
- *Subjective matching*: refers to the workers' personal evaluation of job requirements against their capabilities.

These four dimensions include a mixture of qualification and skills matching. As discussed earlier in this literature review, much existing research uses qualifications as a proxy for skills, but there is ample evidence suggesting that qualifications are not an accurate indicator of the skills held. Qualifications do not account for skills obtained through other means, such as unaccredited, informal or on-the-job learning.

In their investigation of skills shortages and surpluses in the UK, Gambin et al. (2016) summarise a variety of indicators that have been used to identify the occurrence of skills imbalances. These include employment and unemployment, wages, occupational skills profiles, employer-based measures and individuals' reports. Each of these indicators comes with their own limitations and, hence, Gambin et al. (2016) argue, combining multiple indicators may help to provide a more complete picture.

Earlier work by Payne et al. (2010) also promoted a multifaceted approach to measuring skills utilisation. An examination of existing surveys in the UK illustrated the use of questions to employees about whether they possessed more skills than were being used in their job, the types of skills important in their role, the levels of autonomy and discretion they had in their position, as well as the learning opportunities provided in their organisation. While these quantifiable indicators are relevant to the levels of skills utilisation in the workplace, Payne et al. (2010) argue that interpretation of these indicators would benefit from in-depth organisational case studies.

While the use of multidimensional measures of skills utilisation may be the optimal approach in an ideal world, the reality is that businesses likely struggle to implement any sort of measurement. In their survey of Australian businesses, Chandler Macleod (2014) asked senior businesspeople: ‘Do you know the proportion of employees in your workforce that have significant under-utilised skills?’. An overwhelming majority, 81%, answered no/can’t estimate/don’t know.

The take-home message from this discussion on measuring skills utilisation is that there is no single or straightforward way to approach it. Interpretations of any estimations need to account for the types of measures used and their limitations. Care should especially be taken when comparing studies that have used different methodologies.

## Examples of skills utilisation estimations

This section presents a selection of skills utilisation estimations, these providing some insight into how it has been approached, both internationally and in Australia. It is not intended to be an exhaustive list but demonstrates the similarities and differences in the approaches used and the resultant findings.

### *United Kingdom*

The relatively longer-term focus on skills utilisation in the UK has led to several reports being published on the extent of skills utilisation in workplaces. Much of this UK existing work is based on individuals’ perceptions of how well their skills are being used, usually via a survey (Keep 2016). A smaller body of work relates to employers’ perceptions of whether their employees are overskilled or overqualified. There has been little attempt to align these different perspectives to explore the extent of the issue at the organisation or workplace level (Keep 2016).

One of the investigations using employers’ views was the 2013 CBI/Pearson education and skills survey, which captured employers’ views on the skills in their organisations. The findings revealed that almost half (47%) of employers reported that they employed people whose skills were not being fully utilised (as reported by Gambin et al. 2016). The degree of skills underuse (defined as workers being overskilled *and* overqualified) depended on business size and sector, with the underutilisation of skills reported more commonly in small businesses (30% of staff) and in the hotel and restaurants sector (24% of staff). It occurred less commonly in public administration (9%) and manufacturing (10%).

Reporting on the 2017 Employer Skills Survey, which defines a worker as being underutilised if they have both qualifications *and* skills above which are required, Winterbotham et al. (2018) found that 35% of employers had at least one employee they classified as underused in their role. This equated to 8.7% of the workforce having underutilised skills.

Using qualification level as a measure, in 2013 the OECD reported that 30% of workers in the UK claim that they are overqualified for their current job. This proportion was not too dissimilar from that reported by the Chartered Institute of Personnel and Development in 2018, which suggested that over a quarter of the workforce are overqualified, with the highest rates amongst those with degree-level qualifications. Looking at skill level rather than qualification level, a similar picture emerged, with over a third (37%) of workers reporting they could cope with more demanding duties (Chartered Institute of Personnel and Development 2018). The size and type of organisation did not seem to influence the extent of overskilling, but overskilling was higher than average in sectors that had a high proportion of low-wage/low-skilled work.

Taking a different, multidimensional, approach, which considered qualification levels and wage growth to assess skills surpluses, Gambin et al. (2016) developed a list of occupations where potential skills

surpluses may be occurring in the UK. The percentage of workers considered overqualified (in relation to the modal qualification level) in these occupations ranged from 14% in refuse and salvage occupations to 66% in forestry workers. For those occupations with the highest levels of employment, 46% of care workers and home carers were considered overqualified, as were 55% of food, drink and tobacco process operatives, and 56% of construction operatives.

These findings from the UK confirm that approaching the estimation of skills underutilisation in different ways can lead to contrasting views of the extent to which skills underutilisation is occurring and the industries/sectors it in which is most prevalent.

## *Europe*

Specialised surveys focused specifically on skills utilisation have been conducted in Europe with the aim of better understanding the extent and ramifications of skills mismatch. In 2014 Cedefop undertook the first European skills and jobs survey (ESJS). With an emphasis on skills mismatch, the survey collected information from about 49 000 adult employees in 28 EU Member States. This survey indicated that about 40% of employees feel their skills are underutilised in their jobs (European Centre for the Development of Vocational Training 2018). The survey enabled some comparisons across industries, for example, in the opportunities or requirements to learn new skills; this showed that almost one-third of workers in the hospitality and catering sector and one-quarter in the transport sector have not experienced any change in the need to learn in their jobs since they were hired. These figures compare with 15% in the finance sector and 17% in ICT. The authors argue that stagnant skills demands in some industries and jobs may contribute to graduates feeling that their skills exceed what is needed (European Centre for the Development of Vocational Training 2018). The survey also confirmed that skills mismatch can change over time for individuals, although about eight in 10 individuals who entered a job requiring fewer skills than their own remained in such a state (European Centre for the Development of Vocational Training 2018).

In terms of qualification mismatch, close to a third of tertiary education graduates reported they were overqualified for their jobs (European Centre for the Development of Vocational Training 2018). Overqualification was more prevalent in some fields of study, such as in the humanities, languages and arts, where around 35% of individuals reported they were overqualified. This compared with around 10% in the medicine and other health-related fields of study (European Centre for the Development of Vocational Training 2018). Lower levels of qualification mismatch may be expected for those qualifications with stronger occupational linkages.

The state of the economy was shown to influence qualification mismatch levels. Individuals who completed their highest level of education after the economic crisis in 2008 had a significantly higher probability of being overqualified than older graduate cohorts. Returning to the labour market after having spent a prolonged time out of the labour market (due to unemployment, illness or child caring) also maximised the probability of being in a mismatched job (European Centre for the Development of Vocational Training 2018). This raises concerns for those who have lost their jobs due to the current coronavirus pandemic.

Confirmation that skills mismatch and qualification mismatch are not always congruent was also determined through the survey. For example, while around 20% of older workers (55+) were found to have lower qualifications than needed by their jobs, only a minority did not have the necessary skills.

Another survey specifically designed for the study of educational mismatch and skills utilisation was the BIBB/BAuA Employment Survey conducted in 2006 in Germany (Rohrbach-Schmidt & Tiemann 2016). This survey, of about 20 000 workers, collected information on respondents' qualifications and their career

history, as well as detailed information on job tasks, job skills requirements and working conditions. Findings of note from the survey include:

- Depending on the definition and measures used, up to 40% of German workers were mismatched with regards to either the education and/or skills requirements of their job.
- Workers who were both overqualified and overskilled in their jobs were in the minority, reported by only 4.3% of respondents.
- Workers who were overqualified but matched in terms of skills (13.6%) were more common than workers who were matched in terms of qualification but overskilled (7.7%).
- For those workers who were matched on both qualifications and skills, 24.7% felt unchallenged by their jobs' skills requirements (Rohrbach-Schmidt & Tiemann 2016).

## *Australia*

In many economies, including Australia, a sizeable share of jobs has relatively low skills requirements (OECD 2015). The OECD Survey of Adult Skills in 2012 showed that as many as one in 10 jobs in Australia do not require any qualification (OECD 2015). Coupled with the increased credentialism that has occurred over time (O'Dwyer & White 2019), it is more than likely that individuals with qualifications end up in these low-skilled jobs and are therefore overqualified and probably overskilled. Indeed, the OECD Survey of Adult Skills showed that more than 25% of Australian workers had qualifications higher than deemed necessary to get their job (OECD 2015).

There have been several studies aiming to measure skills utilisation in Australia. For example, while Watson (2008) was primarily focused on investigating the extent of skills shortages in Australian, he also used data from the NCVER Survey of Employer Use and Views to investigate the usage of skills in the workplace. He found that up to 40% of employers reported having staff with skills levels above those required. The highest levels of skills underutilisation were reported in education (47% in 2005) and manufacturing (46% in 2005).

These estimates are dependent on employers being able to estimate the skills utilisation of their workers. This cannot be assumed, as evidenced by a survey of 386 businesses, which showed that only around 19% of employers could estimate the skills underutilisation in their workplace (Chandler Macleod 2014). This survey showed that, of that 19%, most estimated that less than 20% of their employees are experiencing significant underutilisation of their skills. Around 8% approximate it at more than 50% (Chandler Macleod 2014).

Chandler Macleod (2014) believe that employers are underestimating the degree of skills underutilisation, especially given the proportion of employees who report they are not using all their skills. Various studies provide estimates of skills use from the employees' perspectives:

- *Watson (2008)*: data from the NCVER Student Outcomes Survey and the HILDA Survey both showed that between 10 and 20% of employees reported they were not using their skills in their jobs. These figures were higher in lower-skilled occupations and those with lower wages.
- *Smith, Oczkowski and Selby Smith (2008)*: a survey of 368 organisations showed that perceptions of skills utilisation varied for four different categories of skills (management, skilled trades, intermediate skills and elementary skills). Across the three industries examined (manufacturing, wholesale and retail, and services), organisations rated their use of management skills at around 86% and use of elementary skills at around 75%.

- *Chandler Macleod (2014)*: almost two-thirds of the 258 employees they surveyed reported that they had skills not being utilised by their employers. Breaking this down further by the extent of skills use provides more information: 15% of workers said they used all of their skills; 21% said they used enough to keep them happy; 31% said some skills are not being used; 33% said a lot of their skills were not being used; while 1% did not know.
- *Denny (2018)*: three out of five Australian workers are not effectively utilising their complement of skills in the workplace (influenced by factors such as employment status, presence of a partner, presence of a child). Field of study mismatch, where individuals are working in a field that is different from their qualification/s, was found to be the biggest contributor to skills underutilisation, especially in lower-skilled occupations.

The variability in these findings demonstrates the difficulties in getting a sense of the true extent of skills underutilisation in Australia, with estimates ranging from 10% of employees up to around 65%. It is clear, however, that it is of a significant level and likely to be impacting on the productivity levels of businesses and the economy. That said, it should be noted that identifying the extent of skills underutilisation and where they are occurring does not necessarily provide insight into how to address the issue (Gambin et al. 2016). This point is examined in the following section.

## How to increase skills utilisation

What can workplaces do to increase skills utilisation and does government have any role to play in supporting this? It could be argued that, despite the increase in policy interest in skills utilisation, the use of skills in the workplace through work organisation is ultimately the responsibility of employers rather than government (Skills Australia 2011). Organisations play the largest role in skills utilisation, as they command the way in which tasks are grouped together into jobs and define the autonomy or discretion workers have in their execution (Russo 2015). Changes in the degree of job complexity are intrinsically linked to organisations' operations: the introduction of new products; the adoption of new production processes and of new technologies; and organisational changes (Russo 2015).

While increasing skills utilisation in the workplace may largely sit with employers, there is potential for many players to be involved. Buchanan et al. (2010) usefully described three types of initiatives that have been undertaken to improve levels of skills utilisation:

- improving behavioural skills to make full use of workers' capabilities
- linking workforce with industry development
- broadening the focus; for example, initiatives to nurture better skills ecosystems.

A selection of international examples of specific initiatives/activities is shown in table A1 (appendix A). Identifying such examples is not necessarily straightforward. In his review of international approaches, Keep (2016) reports that many initiatives have not had skills utilisation as a primary focus and that higher skills utilisation was an outcome of interventions with broader aims. These examples, however, show the potential for many players to be involved, including businesses, government and training providers. The following sections further discuss the possible roles for each of these.

## Workplaces

Unlike skills shortages, employers do not necessarily see skills underutilisation as a business problem (Chartered Institute of Personnel and Development 2018). The demand for and usage of skills within an organisation is, therefore, likely to be determined by higher-level decisions regarding:

- the organisation’s competitive and product market strategies
- the organisational design to deliver these strategies
- the human resource management/employment relations, work organisation and job design that fits with the above choices
- training and development (Keep 2016).

The following discussion describes how some of these activities may influence skills utilisation, although it is very difficult to attribute changes in skills utilisation to specific practices within organisations.

The recruitment practices of organisations are important in effective skills utilisation in the workplace. It is recommended that employers clearly define the skills required for a job role rather than rely solely on the qualification level required (SkillsIQ 2017). As discussed previously, qualifications may be a poor proxy for the qualifications held by individuals, recognising that they are not the only means of developing skills. By focusing on the skills required and resisting the temptation to recruit those who are clearly overqualified, employers are likely take on employees better matched to their jobs.

Looking inside the workplace, job design becomes an important tool in effectively utilising the skills of employees. To optimise the use of skills that have been developed through both training and experience, jobs need to be created and designed that can make the most of these skills (European Centre for the Development of Vocational Training 2018). Overskilled workers are often in jobs which entail a low level of task complexity and do not provide adequate learning opportunities (European Centre for the Development of Vocational Training 2018). Skills may be underutilised where employers are either unable or unwilling to allow workers sufficient discretion in their jobs to enable them to utilise their skills fully (Mavromaras, McGuinness & Fok 2010).

A number of studies have explored the use of high performance work practices (HPWP) and its relationship to better skills utilisation in workplaces (Buchanan et al. 2010; Payne et al. 2010; Skills Australia 2011). HPWP are often considered synonymously with skills utilisation (Payne 2010 et al.; Skills Australia 2011) but are not necessarily designed with the specific purpose of improving skills usage. In fact, implementing HPWP and increasing skills usage may be a somewhat circular process: HPWP provide an approach to management which supports employees to apply their skills and encourages employee engagement. However, also providing individuals with the opportunities to use their skills at work is central to the implementation of HPWP (UK Commission for Employment and Skills 2014). Even if not by design, the link between HPWP and skills utilisation has been well documented – but what is it about HPWP that enables higher skills utilisation among workers?

As described earlier in this literature review, HPWP refers to a combination of various work organisation and managerial practices, which, when ‘bundled’ together, are thought to improve organisational performance, as well as provide a range of positive benefits for employees (Payne et al. 2010). The practices relate to:

- access – recruitment and resourcing
- ability – workforce skills and training
- attitude – engagement and motivation
- application – opportunities for individuals to deploy their skills (Tamkin 2005, p.34).

This model assumes that the presence of skills (of the existing workforce and new recruits) on their own is not sufficient to ensure high performance but that individuals must want to, and can, apply their skills effectively (UK Commission for Employment and Skills 2014).

There is much diversity in how HPWP may be applied in workplaces. Practices that fall under the definition of HPWP may be implemented in various combinations. Additionally, they may be implemented without being coined as HPWP, noting that many of the organisational characteristics and practices described in the literature (including those important for maximising skills use) readily fit under the broad definition of HPWP. Examples of such practices include:

- job redesign and skills audits, autonomy and employee participation, job rotation, and multiskilling and knowledge transfer, enabled by strong leadership and management, good HR practices, communication and consultation, and employee motivation and commitment (Skills Australia 2012).
- workers having the ability, motivation and opportunity to deploy their skills effectively (Warhurst & Findlay 2012)
- the presence of a strong innovation culture, particularly bottom-up innovation (driven by employees); such a culture is likely to include learning opportunities and hence, likely to have higher skills utilisation (Keep 2016)
- work organisation, job design, technology adaptation, innovation, employee relations, human resource development practices and business-product market strategies (OECD & ILO 2017)
- good people management practice (Chartered Institute of Personnel and Development 2018).

It should be noted that implementing HPWP does not guarantee high levels of skills utilisation in the workplace. The 2017 Employers Skills Survey in the UK showed that a greater proportion of high performance working businesses reported they had at least one underutilised employee (Winterbotham et al. 2018). It is not clear why this is the case, but it is possible that workplaces that have implemented HPWP may have greater awareness about the skills utilisation of their employees and, therefore, may be more able to report when underutilisation is occurring.

A focus on individuals needing both the motivation and opportunity to deploy their skills effectively, and how to foster this, has been recently highlighted in the UK (Chartered Institute of Personnel and Development 2018). A combination of management and organisational practices and processes are suggested:

- effective reward and performance management systems
- workplace culture that fosters commitment and engagement
- well-designed work, which gives individuals the chance to problem-solve and be autonomous and provides individuals with the opportunities to fully use their skills
- a climate of trust between management and employees
- mechanisms to seek the views of employees, to respond to their suggestions, and for employees to influence decisions
- opportunity to learn new things, solve unforeseen problems and carry out complex tasks (Chartered Institute of Personnel and Development 2018).

Good management is necessary in implementing these practices and supporting employee engagement and satisfaction (UK Commission for Employment and Skills 2014).

Effective skills utilisation requires a deep understanding of the individual employees (and their skills) and a holistic understanding of an organisation's needs (Chandler Macleod 2014). How this is achieved will vary with the size of the organisation. In medium to large organisations this knowledge is rarely found within one individual and is likely to rely on those with understanding of individuals' skills (such as team leaders, the employees themselves and possibly HR personnel) and those with an appreciation of the strategic skills needs of the enterprise (Chief Executive Officer, Chief Operating Officer, office manager, possibly also HR). Larger organisations (over 1000 employees) are more likely to involve employees in the process of skills utilisation, potentially because they tend to have more formal processes in place (Chandler Macleod 2014).

In a survey of employers, Chandler Macleod (2014) found that the most common processes used to tap into the unused skills of employees was training (43%), multiskilling (42%) and mentoring (39%). Other processes used were knowledge transfer, job rotation, job redesign and provision of 'innovation time'. There are no guarantees, however, that efforts made in an organisation will result in the same outcomes for all workers. Activities undertaken to increase skills utilisation in an organisation may have mixed results across the workplace, potentially varying across different groups of workers. For example, Smith, Oczkowski and Selby Smith (2008) found that training for other jobs in the organisation reduced skills utilisation in the manager/professional group of workers, and the job attributes of teamwork autonomy reduced skills utilisation in skilled trades workers. This suggests that there is unlikely to be a one-size-fits-all approach for increasing skills utilisation, across or within organisations.

Cost may also be a barrier to businesses implementing skills utilisation practices. Based on their survey of organisations/enterprises, Chandler Macleod (2014) reports that the main barrier to implementing programs that formally identify underutilised skills at the enterprise level is cost. These programs are seen as requiring financial resources, additional time from employees and management support.

The above demonstrates there are a host of practices that organisations can implement with the potential for increasing skills utilisation, even if that is not the specific goal. But for many, especially small businesses, having the resources and the know-how to do so may be challenging. How can businesses be supported to implement change in order to improve the skills utilisation of their workers? The following sections consider the potential roles of government and VET in this.

## What role for government?

While levels of skills utilisation rely on practices occurring within the workplace, there has been international commentary calling for the inclusion of skills utilisation in public policy. The following provides insights into the consideration of skills utilisation in public policy, internationally:

- In the EU, Russo (2015, p.1) suggests that 'increasing skills utilisation and formation is linked to creation of value added and competitiveness and should be at the core of EU policies aimed at promoting economic growth through investment in skills'.
- In the UK (especially in Scotland where activity in this space was initiated), Keep (2016) describes the increasing consideration of skills utilisation in public policy to address the lack of any substantive economic payoff to the large investment made in skills development.
- In Australia, the inclusion of the skills utilisation concept in the National Agreement for Skills and Workforce Development, created by the Council of Australian Governments (COAG) in 2009 demonstrated the increasing focus of government in this area. One of the four proposed outcomes of the agreement was that 'skills are used effectively to increase labour market efficiency, productivity, innovation and ensure increased utilisation of human capital'. Hence, there has been recognition in

Australia that policy focused on skills supply is not enough and an increasing understanding that the application of skills in the workplace is equally important.

The OECD (2015) suggests that skills policies should support employers to make better use of the skills available to them. In terms of a skills policy framework, the OECD (2015) recommends it be built around three main areas to achieve better economic and social outcomes:

- building skills for work and life
- encouraging firms to invest in skills
- ensuring that skills are fully used (through better activation and matching).

This suggests that skills utilisation should be incorporated into a multifaceted skills policy. While the first two points have traditionally been the focus of skills policy, skills utilisation has seen relatively less attention from policy-makers.

Consideration of an even broader range of policies may be required when considering skills utilisation. Buchanan et al. (2010) argue there is a need to understand how ‘initiatives in other realms of policy’ shape the demand for, and utilisation of, skills in the workplace. This would mean that in Australia such policies would not be isolated to education and training portfolios, further complicating the potential for implementing practical programs.

The above highlights that skills utilisation in the workplace is a complex issue. Even when measurement has identified occupations where skills underutilisation is occurring, it is not clear how any policy interventions should be prioritised (Gambin et al. 2016). Mayhew and Keep (2014, p.3) acknowledge the difficulties faced by policy-makers and conclude that:

unfortunately, although UK national skills policy has offered a nod in the direction of this analysis, in reality attempts to do anything to stimulate underlying demand for skills or to improve the utilisation of existing skills have been regarded as too difficult to address in any very direct fashion by government.

Recurring issues have also included a lack of buy-in from individual enterprises, possibly reflecting the difficulties faced by policy-makers in convincing organisations of the benefits of skills utilisation and in promoting complex concepts such as high performance working practices, especially given the mixed evidence on effectiveness (Keep 2016). Similar issues to other types of initiatives are also faced; namely, a heavy reliance on external support and a lack of sustainability when funding ceases (Keep 2016). It is perhaps not surprising, then, that policy-makers often tend to return their focus to the issue of skills supply. This may also be driven, at least partly, by employers, who are more likely to consider skills shortages as a business problem than skills underutilisation (Chartered Institute of Personnel and Development 2018).

Developing policy to address skills utilisation is not easy. One difficulty is that policy in this area needs to be focused on the organisation or enterprise level, not at the individual level, where much skills policy lies (Mayhew & Keep 2014). Keep (2016) also suggests it is difficult for policy-makers to tackle skills utilisation policy due to little available research or other models to draw on: ‘skills utilisation policy across the UK is relatively uncharted territory’ (p.7). The same can be said for Australia. Given these complexities and that change needs to occur within the workplace, where government has limited reach, Denny (2018) argues that the role of government is therefore to create an environment in which institutions and enterprises can operate at an optimal level, including their effective use of skills. To this end, government can have influence through policy development, regulation and legislation to provide

macroeconomic stability, microeconomic frameworks and investment in infrastructure (Denny 2018). Skills Australia (2010, p.5) had a similar view:

Improving workplace performance is primarily the responsibility of employers. The role of governments is to support and encourage employers to take the lead and tackle this issue through improvements at the enterprise and industry level.

Following this line of thought, the Chartered Institute of Personnel and Development (2018, p.37) provides the following suggested policy responses:

- raise awareness of the challenge amongst businesses
- make skills utilisation a key priority of industrial strategy (tackled alongside efforts to raise overall demand for skills)
- provide targeted, specialist support to help firms take the ‘high road’ and reshape work (business and competitive strategies, leadership and management capability)
- increase efforts to provide high-quality careers advice and vocational pathways into work, to better align skills provision with employer demand.

Raising awareness among businesses may be useful, as it has been suggested that employers may be unaware of the benefits that increased skills utilisation has for individuals, the business and the economy more broadly (Keep 2016). This may be a potential role for government, but for this to translate into action by employers, however, any messages need to be targeted to individual industries or sectors. If part of a multifaceted approach, one that is not targeting skills utilisation alone, they are likely to be more effective and to resonate (Keep 2016).

The OECD (2015) also emphasises how policy might be used in educating businesses, pointing to a role in emphasising mechanisms that help managers, especially in small and medium-sized enterprises, to identify effective work and organisational practices. These might include promoting innovation and adopting technologies and practices that complement the existing skills base, raising employee engagement and initiating high-performance organisation of working and learning, which involves job flexibility, delegation of authority, and incentives for innovation (OECD 2015).

The most comprehensive consideration of how government might tackle skills utilisation policy comes out of the UK, where Keep (2016) suggested the following approaches:

- Determine where skills utilisation policy might sit within the overall machinery of government and other skills-related policies. This should include consideration of the causes of any poor skills utilisation, meaning that skills utilisation should be tackled as part of a wider drive around economic development and business improvement and support. There needs to be a joining-up of different agendas.
- Developing a suite of pilot projects to test how new policy models can generate change (building in evaluation). Evaluation of these pilots would provide intelligence on what sectors and sub-sectors, sizes of firms, regions and localities and occupations might be targeted for a larger program of work. Employers need to be willing to cooperate and invest time, energy and resources of their own if they are to receive government help.
- Devolve structures, given that centrally designed, top-down approaches or policy are not likely to improve skills utilisation. Networks of education and training providers, workplace innovation consultancy services and economic development/business improvement agencies and employers may be key actors.

- Build coalitions of employers, unions, government, universities and training providers to facilitate development and implementation of policy.
- Build capacity, particularly in human resource management.
- Sell the policy within government; previous interventions have shown that policy-makers may revert to the comfort zone of skills supply.
- Establish realistic expectations regarding the pace and scale of change.

There are many different elements to these suggested approaches, and policy-makers would need to consider the environment in which they would be implemented to ensure their suitability. Buchanan et al. (2010) explain that it is important to understand the conditions under which ‘successful’ skills use initiatives have been implemented in order to assess the possibility of replicating it elsewhere. By way of example, the authors point to the work demonstrating the limited success of countries and regions that have tried to replicate the success of Silicon Valley. It is difficult to report on how successful previous interventions have been in raising skills utilisation, however, because many of the examples reported on in the literature have not been formally evaluated or have only been evaluated in a qualitative (and often subjective) manner (Keep 2016).

The degree of success in the implementation of such approaches is also heavily dependent on sufficient resourcing and the commitment of appropriate people to champion the cause. Given that problems may be deeply ingrained in the structure and models of thinking in many organisations, Keep (2016) suggests that one-off programs are unlikely to have much impact and that a sustained effort is required. Additionally, endeavours by government to increase skills utilisation are not likely to work in isolation. Concerted efforts by all stakeholders – national and local governments, individuals, employers and unions – are required to ensure that skills are utilised effectively in the workplace and across economies (OECD 2015).

Closer to home, Skills Australia’s *Australian workforce futures* (2010) included recommendations for how Australian governments could use public funding to leverage workforce development at industry and enterprise levels to improve skills utilisation. With a special focus on small business, Skills Australia suggested:

- that government funding be used to link skills development with business innovation and growth
- stronger encouragement of tertiary education sector/industry partnerships
- the use of publicly funded programs, such as the now-defunct Productivity Places Program, as leverage to engage enterprises in workforce development
- the establishment of a national program of industry clusters or networks to address the collective skills and workforce challenges faced by enterprises in an industry sub-sector or region (Skills Australia 2010, p.9).

The recommendation for government to help foster linkages between business and other types of organisations (such as education providers) has been promoted by others. Cunningham et al. (2016, p.8) suggested that ‘a major role for government is providing conditions that support the mix and use of skills beyond organisational boundaries’. They point to highly innovative organisations, those in which strong innovation ecosystems are embedded to allow access to skills bundles. In addition to their internal skills development, this enables those organisations to use external labour markets and collaborative relationships with other organisations and networks. Government can enable such environments through investment in regional infrastructure, such as business parks, and co-location with universities and

research institutions (Cunningham et al. 2016). Buchanan et al. (2010) also promote broadening policy concerns to include changing jobs and the forces shaping them (that is, improving the ‘skill ecosystem – the social, political and economic settings within which skills are developed and deployed’, p.9).

## The role of education and training

Noting the role of learning in the definition of skills utilisation proposed by Skills Australia (see page 5), skills utilisation is not necessarily independent of skills development. Indeed, skills utilisation, and some of the practices that might be implemented to increase it, is intrinsically linked to the skills that workers have at their disposal. Innovation in workplaces relies on employees possessing a variety of both technical and non-technical skills, including creative, design, interpersonal and entrepreneurial skills (Cunningham et al. 2016). Innovative organisations use sophisticated recruitment and retention practices and take a long-term approach to investing in and building skills bundles through internal training and development (Cunningham et al. 2016). Providing employees with access to training, as well as opportunities to progress in their role (either through promotion or through changes in duties and/or tasks), helps individuals to develop and deploy their skills more effectively (Chartered Institute of Personnel and Development 2018).

The idea of fostering linkages between businesses and education providers (as described above) suggests a role for VET in improving skills utilisation beyond simply developing skills. Skills Australia (2010, p.5) describes how partnerships between industry and education and training providers can improve skills utilisation:

One way to encourage the more effective use of existing skills is through stronger partnerships between education and training providers and industry. Skills Australia is aware of many excellent examples, especially where firms are innovating or restructuring, where training providers have worked with enterprises to conduct skills audits of their staff and to identify gaps. Together these providers and enterprises have considered how the work could be re-organised and jobs designed – potentially with better career paths – to make the best use of existing and future skills.

This suggests that education and training providers, as specialists in understanding skills, may be able to help businesses to understand how to maximise the skills available to them, as well as understand future skills needs.

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# Appendix A

**Table A.1 International examples of various initiatives directly targeting or indirectly influencing skills utilisation**

Country	Description/notes	As described in
Australia	Skills ecosystem approach to break down barriers between education, firms and other stakeholders to address skills issues in a more integrated fashion. The system identifies roles for individuals, firms, education and training providers and policy-makers, which, when combined, allow skills utilisation to be realised on a national level, rather than just in individual businesses. A number of projects were funded, with each including an aim to address both the supply and demand side of the skills equation, as well as how they were being used in the workplace and occupational/local labour market. The skills ecosystem projects were not focused specifically on skills utilisation, although it emerged as a theme in some of the projects. Ultimately, however, the projects failed to bring about a fundamental re-orientation in the way the Australian skills system defined its role, and policy reverted back to the comfort zone of supply-side issues. These projects did not lead to a sustained and widespread policy focus on areas such as skills utilisation.	Centre for Enterprise (2008) Keep (2016)
Australia	Workforce development initiatives were implemented at the industry and regional levels, with a particular a focus on 'skills ecosystems' to promote better use of skills in Queensland and NSW.	Skills Australia (2011)
NZ	In 2011 the New Zealand Government was implementing skills utilisation policy through the High Performance Working Initiative (HPWI). The aim was to support enterprises to improve their business processes through effective employee engagement and workplace practices. The program involved providing practical support by partially funding specialist business consultants to help organisations implement HPW practices. The program involved industry bodies, trade and union organisations and regional business networks becoming partners in delivering support for this initiative to their members.	Skills Australia (2011)
Singapore	There have been a number of state-led projects in Singapore. One example is the Critical Enabling Skills Training (CREST) Programme. CREST aimed to refocus the skills agenda in Singapore from technical skills to building a foundation in order to develop a number of 'critical' (or core) skills, which enable Singapore employees to continually acquire and apply new knowledge and skills. There are seven critical skills in the CREST model: 'learning-to-learn', literacy, listening and oral communication, problem-solving and creativity, personal effectiveness, group effectiveness and organisational effectiveness and leadership. Once the skills have been acquired on the courses, the companies sign an agreement to apply those skills in the workplace. The CREST programme therefore embodies skills utilisation, in that it attempts to move from skills acquisition to skills utilisation.  Another example of a project is the Work Redesign Programme, which aims to encourage employers to continuously review their work processes and adopt a total approach to workplace	Centre for Enterprise (2008)

UK	<p>redesign. The government-led project aims to develop 50 work redesign blueprints, which represent the 20 industry clusters identified as crucial to Singapore's future development.</p> <p>Pilot project: ten organisations were offered in-depth support to help them to change working practices and employee engagement in order to increase business performance. Improved skills utilisation was not an explicit focus but was an outcome in a number of cases. One of the main lessons was weakness in the internal management capabilities being helped and the level of external support required to make the projects function.</p> <p>Another initiative implemented to improve the use of skills in the workplace is Investors in People, first introduced in 1991 with responsibility passed to the UK Commission in 2010. The initiative specialises in transforming business performance by aligning business planning and goals with people management. Investors in People helps organisations to grow, improve their performance and business impact, and ensure the skills of their employees are fully used.</p>	Keep (2016)
Scotland	<p>Skills utilisation policy in Scotland is part of a broader, comprehensive policy on employment relations and job quality (e.g. Skills for Scotland: Accelerating the recovery and increasing sustainable economic growth). A Skills Utilisation Leadership Group was established to bring together business, union, government and stakeholder groups to 'champion the better use of skills in the workplace'. Twelve skills utilisation pilot projects were funded with the aim of identifying and addressing a challenge or issue preventing the better use of skills in the workplace. The projects were extremely varied: seeking a better match between educational offerings and employers' need; business development and knowledge transfer focus; rethinking production processes; and redesigning work organisation and jobs. Some of the projects were criticised, however, for being focused on skills matching and course design rather than on efforts to increase skills utilisation through work reorganisation and job redesign. Additionally, the usual issues that arise with small-scale pilot projects were seen: sustainability after funding ceases; difficulties with evaluating impact; uncertainty around how to diffuse learnings; how to scale up.</p>	Payne et al. (2010) Skills Australia (2011) Keep (2016)
Ireland	<p>The focus in Ireland has been primarily on implementing HPW practices within organisations. There are 42 recommendations in the Working to our Advantage – A National Workplace Strategy, which aim to create a workplace of the future that is: agile (in terms of innovation); customer-centred; knowledge-intensive; networked; highly productive; involved and participatory; continually learning; and proactively diverse.</p> <p>In 2007 Ireland introduced the Workplace Innovation Fund as part of its National Workplace Strategy. Ireland's national skills strategy aimed to transform Ireland's workplaces by promoting greater levels of partnership-led change and innovation in places of work, regardless of size or sector. The objective of the Workplace Innovation Fund was to help small and medium-sized enterprises boost their productivity and performance by embracing and embedding innovative workplace practices, while developing employee participation and empowerment as enablers of change and creativity. At the level of the enterprise, activities aim to support improved partnerships between management and employees, enhance capacity for change among employees, build employee commitment to a better workplace and introduce new human resources processes to support business. These activities support redesigning work arrangements, providing support to that component of skills utilisation.</p>	Centre for Enterprise (2008) Buchanan et al. (2010)
Norway	<p>Norway has invested heavily in skills utilisation over the last 40 years through a number of national programs. Skills utilisation within Norway has been characterised by a national drive focused on delivering project activity in the workplace and a strong commitment to employee wellbeing. The main barrier to effective skills utilisation in Norway has been the low level of buy-in from individual organisations. The Norwegian Government has been unable to prove the</p>	Centre for Enterprise (2008) Keep (2016)

benefits of skills utilisation to organisations in Norway and has found it difficult to disseminate evidence of good practice.

A case study: the cleaning industry becoming professionalised and requiring a necessary set of skills and training (and new work methods) – increasing skills utilisation.

Finland	<p>Finnish skills utilisation has been driven forward by a government-run program, led by the Ministry of Labour, The Finnish National Workplace Development Programme (TYKE-FWDP), running between 1996 and 2003. In this time, 670 projects were funded, 135 000 employees were involved and 1600 Finnish workplaces participated. The program aimed to improve productivity and the quality of working life by furthering the full use and development of staff know-how and innovative power at Finnish workplaces. The program disseminated research publications, organised seminars, workshops and focus groups, as well as acted as a broker, bringing stakeholders together to build up the national infrastructure in Finland. Enterprise-level projects aimed to address issues such as job design, improving work practices, external networking, developing expertise, and introducing new forms of work organisation and the role of management; high performance working practices were explicitly encouraged.</p>	<p>Centre for Enterprise (2008) Buchanan et al. (2010)</p>
Scandinavian and Northern European countries	<p>Workplace innovation approaches adopted (focused broadly, not just in high-end high-tech companies). Most of these policies and activities are not focused specifically on skills utilisation. In these countries, it tends to be centred on quality of working life and workplace innovation (work organisation, job design, and workplace and organisational development). Innovation on the 'shop floor' relies on staff being able and willing to make incremental adjustments in the quality, specification, design and/or utility of the good or service that is being delivered, to improve productivity or quality. Public subsidy has been used to reconfigure work organisation, job design and production processes and technologies to enhance this capacity for bottom-up innovation (which can work alongside the science, technology and innovation occurring top-down). The link between workplace innovation and skills utilisation is that there is a strong relationship between workplace innovation and workplace learning. The workplaces that possess the characteristics that allow high levels of learning and innovation are likely to be ones in which skills utilisation will also be higher.</p>	<p>Keep (2016)</p>
Italy	<p>In the Riviera del Brenta industrial district in Northern Italy, local employers association (ACRIB) firms have collaborated on a common marketing strategy while also pooling investment in training provision and helping firms to collectively upgrade their product market strategies. The privately run local polytechnic has played an important role, employing firm managers to train local workers and job seekers after hours, while also offering management training, and investing in research, innovation and technology transfer. The polytechnic invests in skills supply while also optimising skills utilisation through new product development and improved human resource management.</p>	<p>OECD (2015)</p>
United States	<p>US invested in the Jobs and Innovation Accelerator Challenge grants, which helped to embed skills policies in a broader set of interventions to stimulate innovation and technology transfer. The AMJIAC grants gave flexibility to regions to determine the best way to support small and medium-sized manufacturers, with each region drawing upon its particular assets and capabilities. For example, in East Tennessee, efforts focused on expanding usage of additive manufacturing technologies. Firms were invited to tour demonstration facilities to better understand the opportunities, and an additive manufacturing certification program was created to equip new and incumbent workers with the necessary skills.</p>	<p>OECD (2015)</p>

