

Industry currency and professional obsolescence: what can industry tell us?

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Contents

A	Literature review	4
B	References	19
C	Continuing professional development website analysis	22
D	Interview questions	25
E	Participant questionnaire	40
G	Defining the terms	43

A Literature review

This review examined the literature on how industry skills and knowledge are maintained in the professions. It draws on the research undertaken into what is termed 'professional obsolescence'. This condition occurs when the technical skills and domain knowledge of an individual no longer match the performance standards required in the workplace. Much of the research on the topic has emerged from fields such as engineering, information and communications technology and management - all of which are fields where technological change has called for the ongoing development of new skills, new knowledge and new ways of working. Obsolescence, therefore, is an ever-present threat for these professionals. Much of the literature focuses on the reasons why obsolescence occurs. However, numerous studies have examined possible strategies for addressing this threat in organisations with workforces made up of significant numbers of professionals.

But why might an examination of obsolescence in the professions have relevance for vocational education and training in Australia? Like enterprises everywhere, registered training organisations are facing the challenge of keeping the industry skills and knowledge of VET practitioners up to date in an environment of constant change. At the same time, VET practitioners are being viewed as active agents in achieving the education and training goals of governments, industry and communities and individual Australians. Thus, industry currency (or the lack of it) has become a critical issue for the sector. The Commonwealth Government's agenda and push for higher skill levels, the Bradley Review's (2008) recommendations for a continuum between VET and higher education provision, increasing demands for high-quality teaching and the regulatory requirements of the Standards for NVR Registered Training Organisations all reinforce the need for teachers and trainers across the sector to maintain the currency of their industry skills and knowledge. Moreover, VET practitioners are being asked to become more flexible, innovative and responsive in delivering customised and relevant training in increasingly competitive markets; to use new technologies as they emerge; and to provide more and more training in enterprises. This increasing workplace engagement places greater emphasis on VET practitioners having the capabilities necessary to operate with credibility in industry. Up-to-date knowledge of industry practice and vocational competence are key to this credibility.

In examining the causes and implications of obsolescence, it is evident that individuals, their employing organisations and relevant professional associations all have a part to play in determining ways to refresh and extend the vocational knowledge and skills so critical for sustained organisational productivity. Given the critical importance of keeping the vocational competencies of individuals current, it would seem timely to examine how professions beyond the education and training sector address this very complex issue. Insights gained from an analysis of obsolescence research have the potential to increase our understanding of how and why the phenomenon occurs. More importantly, these insights can also inform the development and implementation of workable solutions for what is clearly a common and intractable problem amongst many practitioners in the VET workforce.

Industry currency in VET

Vocational education and training exists to meet the needs of industry and serves to bring industry and education together (Skills Australia 2010b). The Allen Consulting group (2006) identified skilling as a shared responsibility between employers, government and individuals and highlights issues impacting on workplaces, such as market globalisation and the demands of implementing new technologies, which necessitate constant upskilling or reskilling of staff. Despite the Australian

training system needing to be prepared and capable of assisting workplaces to deal with these types of challenges, more than a quarter of employers surveyed in this report did not agree that VET practitioners had relevant industry expertise (Allen Consulting Group 2006).

The currency of the vocational skills and knowledge of VET practitioners remains a key concern for industry. In acknowledgement of this, the Standards for NVR Registered Training Organisations (SNR 4.4 and SNR 15.4) directs training organisations to ensure that practitioners continually work to maintain current industry skills and up-to-date knowledge of job roles, processes and emerging innovations in industry. Underpinning these requirements is the presumptions that being industry-current will enable practitioners to plan, deliver and assess training that is directly relevant to current industry practice and job roles, thereby reducing inappropriate and redundant training.

Skills Australia (2010b) claims that, of all the education sectors, VET is the most closely tied to the economy due to industry's reliance on the training provided by registered training organisations. Practitioners in the sector play a crucial role in ensuring that both new and existing workers have the skills required to meet the current and future needs of industry (Innovation and Business Skills Australia 2010). It is therefore critical that VET practitioners themselves are highly skilled. Confronted by the changing skill requirements in industry, VET practitioners need meaningful learning experiences to update their industry currency, as well as pedagogical skills (Skills Australia 2010b) to deliver training effectively. However, few industries are proactively taking responsibility for the industry currency of VET practitioners in their particular industry area (Toze & Tierney 2010). This means that industry currency is generally a process driven by a VET practitioner and/or registered training organisations.

The importance of industry currency

The currency of the vocational skills and knowledge of VET practitioners affects the credibility of the VET sector and, as a consequence, is important to the various stakeholders in the system. As Mitchell notes in his submission to the Productivity Commission (2011, p.243):

The credibility of the VET sector hinges largely on whether the skills of its practitioners match the skills used in contemporary industry. But the industry currency of VET practitioners is rarely discussed in public, and when it is raised people normally talk about practitioners undertaking a quick stint in industry.

Needless to say, maintaining links with industry enables VET practitioners to retain passion for their industry and their identification as a member of that industry. Being industry-current gives them an understanding of the current workplace structures, practices and cultures, as well as an awareness of the emerging technologies and practices that may have a future impact on local industries. Currency engenders confidence in practitioners' ability to deliver training that is relevant to recipients of that training. The combination of current skills and knowledge affords them greater credibility with learners and employers (Toze & Tierney 2010).

The industry currency of the VET workforce affects the market credibility of the qualifications issued by registered training organisations and, ultimately, their financial viability (Clayton, Fisher & Hughes 2005). Organisations that encourage their staff to build and maintain strong industry relationships can benefit through return business. Productive relationships with industry build trust and provide greater scope for information and experience-sharing (Toze & Tierney 2010).

Industry wants to be confident that VET trainers have a current understanding of the workplace and possess the current skills for training workers for their industry (Guthrie 2010). They want training

that provides skilled, work-ready employees who can meet emerging industry needs (Daly 2010). Employers expect training that is relevant to their workplace. They do not want staff trained in outdated and inappropriate practices.

Of equal importance is the expectation of learners that the training they undertake will provide them with what is valued by industry; is immediately applicable and will make them employable. They expect VET practitioners to be experts in the skills and knowledge that are relevant to the current workplace. Chappell (2000) notes that, because VET students are often employed in the industry for which they are receiving training, they can readily identify whether the training is applicable to their experience of the workplace. Therefore they are more likely to critically appraise the currency of the VET practitioner's knowledge of the industry (Chappell 2000).

Governments, as the single largest purchaser of training in Australia (Skills Australia 2010b), expect the training they purchase to provide skills that will support and increase the productiveness of the economy. Governments use a combination of regulatory and policy levers, for example, the Standards for NVR Registered Training Organisations, to improve the quality and responsiveness of the VET sector.

Industry currency – what the literature tells us

Although industry currency has been identified as the most significant requirement for VET practitioners, there is limited research in Australia that focuses explicitly on industry currency and therefore little information about how to maintain it (Productivity Commission 2011; Toze & Tierney 2010; University of Ballarat 2009). There appears to be an implicit assumption that VET stakeholders understand what industry currency is and how it should be maintained. However, audit figures from the Queensland Department of Education and Training indicate that, in 2007-08, 19 per cent of audit non-compliances in Queensland were related to industry currency (Hunter 2009). These results may, in large measure, be a reflection of the lack of quantifiable measures for industry currency.

Much of the current research into VET practitioner capability focuses on pedagogical capability and refers to industry currency as one aspect in a wider review of the capability requirements affecting the quality of teaching, learning and assessment (Callan 2006; Guthrie, Perkins & Nguyen 2006; Harris et al. 2009; Mitchell 2010; Wheelahan 2010). VET stakeholders' understanding varies on what constitutes industry currency and how an industry currency strategy should be planned, measured and benchmarked (Toze & Tierney 2010). Toze and Tierney also found that industry currency was often confused with industry placement, which leads to a very narrow concept of the range of activities and experiences that can be used to maintain currency. As early as 2001 Moy argued the importance of not simply equating technical currency with return to industry. Instead, there needs to be greater recognition that the currency requirements of individual practitioners often mean a much more complex combination of activities appropriate to the contexts in which they are delivering. There is also evidence to indicate that vocational competency and currency can mean different things to different people.

Clayton, Fisher and Hughes (2005) found that most TAFE managers preferred developmental strategies that result in teachers having a good understanding of current industry practice, particularly when this is gained through close engagement with industry. In contrast, human resource managers interviewed for the same study considered teaching qualifications and skills to be an important part of a teacher's vocational competence, reflecting the dual professional requirement of the VET practitioner. Guthrie (2010) emphasises the critical importance of finding a balance in developing capability across industry currency and teaching, learning (students') and assessment skills,

highlighting the uniqueness of the VET sector in its requirements for practitioners to possess and maintain skills and qualifications in both their vocation and in training and assessment (Callan 2006; Productivity Commission 2011; Toze & Tierney 2010).

Skills Australia (2010a) argues that a workforce development plan is required for the VET sector if it is to respond to government targets for the Australian skills profile and to meet increasing industry demand for a responsive and agile training sector. Any workforce development plan will need to include a focus on practitioners' developing and maintaining current industry skills and knowledge. Seven key elements for practitioners are identified by Callan (2006, p.30). Practitioners should:

- demonstrate the dual identity of being an educational professional and an industry professional
- demonstrate technical expertise in their subject areas
- possess industry skills and current knowledge, which allows appropriate decisions about the type, delivery and assessment of training
- advocate the training requirements of industry to other members of their teaching teams
- show familiarity with the developments in their industry and knowledge of leading practices and emerging trends in the industry or discipline area nationally and internationally
- demonstrate well-developed networks in their industry that they can regularly call upon
- understand workplaces and their structures, cultures and politics.

Key elements from other core capabilities that relate to the maintenance of industry currency include practitioners:

- being able to partner with industry (managing relationships)
- being appropriately qualified under the Standards for NVR Registered Training Organisations
- using a range of strategies to retain industry currency, including courses and networking with industry (professional development) (Callan 2006, p.30).

Vocational expertise and industry currency are identified by Guthrie, Perkins and Nguyen (2006) as one of the nine categories of skills that VET practitioners require to improve their practice. They considered that this expertise could be developed and maintained through effective industry engagement and networks, analysis of industry research, and developing and maintaining an understanding of current and emerging industry practice, job roles and technology.

The research undertaken by Wheelahan and Moodie (2011) on the quality of teaching in VET identified the need for a much more expansive notion of industry currency – one which takes on the idea of comprehensive knowledge and understanding of technological advancements and initiatives in industry both locally and globally. They note: 'it is clear that we need to develop a common understanding of industry currency and industry engagement as part of a national professional development program' (Wheelahan & Moodie 2011, p.49).

Strategies for maintaining industry currency

Guthrie (2010) builds on the previous work of Moy (2001) and Clayton, Fisher and Hughes (2005) and lists a range of possible approaches to industry currency. These include part-time industry work incorporating structured information-sharing with VET colleagues; monitoring local, national and international trends and emerging technologies in the vocational area; workplace training and

assessment; industry release; industry projects; maintaining industry licences and registration; study tours and site visits; professional reading; research; and participation in industry networks.

Similar activities were also reported by Toze and Tierney (2009), who found that Queensland VET practitioners attended industry conferences, workshops and other industry professional development programs; maintained memberships in industry and professional associations; applied for teaching awards and scholarships; participated in industry engagement activities; attended training courses on new equipment or new skill sets; took part in work shadowing; applied for research scholarships; and contributed to workplace or collaborative projects. The key messages from Toze and Tierney (2009) are that:

- More innovative approaches and planning are required to overcome barriers to maintaining industry currency.
- Applying an outcomes focus during planning provides greater clarity and purpose to industry currency activities.

Maintaining industry currency builds industry relationships with registered training organisations and promotes industry confidence and goodwill.

Mitchell (2010) also summarises the most frequently used approaches by VET practitioners for maintaining their currency. Included are contact with personal and professional connections, the use of mentors, coaching and benchmarking; industry experiences; training courses; working in VET; and active enquiry. Further, a recent Australian study found that the majority of VET practitioner survey respondents expressed the belief they were up to date with the knowledge and skills needed by their industry (Department of Education, Employment and Workplace Relations 2010). The types of activities they had undertaken to maintain currency are set out in table 1.

Table 1 Updating activities over 12-month period by employment type

Activities	Employment type (no.)				
	Casual	Fixed-term	Ongoing	Self employed	Sessional
Industry placement	19	28	129	8	9
Concurrent industry/RTO employment	41	46	193	27	18
Industry/Prof. Assoc. Membership	36	74	394	26	10
Conferences, workshops, courses	95	147	699	44	39
Professional journal subscriptions	60	99	512	31	28
Networking	76	138	632	39	30
Industry visits	39	79	453	12	9
Other	9	6	30	1	5
Total practitioners	147	194	926	57	63

Source: Productivity Commission (2010) estimates based on unpublished data from DEEWR.

Despite this positive result, maintaining industry currency must be viewed as a key risk factor for all VET practitioners and a critical area for their ongoing development. In the context of older or tenured VET practitioners with between ten and 15 years service, there is growing concern over low levels of confidence in succeeding in industry currency activities. They have a fear of inadequacy, and as a consequence may be reluctant to update knowledge and skills (Clayton, Fisher & Hughes 2005). The outward appearance of this is a lack of interest in continuing professional development. These are all characteristics of obsolescence as described in the research involving various professions.

The other source of concern is the lack of access to ongoing professional development for the casual workforce. In their final report on the VET workforce, the Productivity Commission (2011, p.31) reported that part-time employment of non-TAFE trainers and assessors was 33 per cent. They also concluded that, while the data were not necessarily accurate, 'part-time employment is likely to be higher in the TAFE sector'. Mlotkowski and Guthrie (2010, p.22) in an article entitled 'Getting the measure of the VET professional' put the figure for part-time practitioners in TAFE as high as 48.5 per cent. While the data may vary from one report to another, it is clear that a considerable proportion of VET teachers and trainers are in casual or part-time employment. More importantly, as Service Skills Australia (2009, p.15) notes, this is a group that is 'hard-to-reach', with engagement in developmental activities being quite low.

It is accepted that casual staff are often employed because they have current industry expertise, a fact confirmed by Junor (2005, p.226), who reported responses from a training needs survey conducted with one thousand Victorian casual staff in 2000. Thirty-nine per cent indicated that they were 'industry experts', while 46 per cent suggested that their main job was TAFE teaching. Critically, less than one-third of the respondents had accessed professional development. If this situation still holds true, it is difficult to see how practitioners in casual employment can possibly retain the level of currency needed to satisfy quality assurance requirements or industry's demands for delivery of up-to-date training.

However, it can be argued that age or tenure alone do not account for the obsolescence of knowledge, skills and abilities (Yeatts, Folts & Knapp 2000). Rather, obsolescence can also be attributed to the failure of employers to provide continuing professional development opportunities, believing that they will see a limited return from their training investment. Releasing practitioners so that they can engage in meaningful skills updating requires backfilling, which can be costly, and opportunities tend to be limited. The literature does suggest that the key strategies that registered training organisations utilise for maintaining industry currency are industry engagement, workforce development planning and continuing professional development. As described earlier, the professions make use of the latter for maintaining currency and many industry sectors claim to adopt this approach, an approach favoured by Wheelahan and Moodie (2011) for VET practitioners. While continuing professional development schemes are generally overseen by a professional association or governing body, this approach immediately raises some issues for the VET sector, as there is no overseeing body responsible for the continuing professional development of VET practitioners (Guthrie 2010).

Barriers to maintaining industry currency

In recent times, the dearth of high-quality continuing professional development for VET practitioners has become an area of major debate and much of the concern has centred on the maintenance of industry currency (Guthrie 2010; University of Ballarat 2009; Toze & Tierney 2010). According to Wheelahan (2010), this illustrates a failure of the Australian VET sector to comprehend the inherent value of supporting VET practitioners in maintaining industry currency. While there may be tacit recognition of the importance of industry currency to the integrity of the VET system, there seems to be a resistance to formalise the process and thus move away from traditional ad hoc or narrow approaches to this issue (Guthrie 2010; University of Ballarat 2009; Wheelahan 2010). Indeed, researchers have found significant barriers and have categorised them into several domains, for example, organisational, industry, environmental and personal (Clayton, Fisher & Hughes 2005; Toze & Tierney 2010). Not surprisingly, these barriers mirror those previously identified as applying in the professions.

Findings from the literature suggest that organisational barriers include accessibility and planning, work or role intensification, scarcity of time, rigid structures, non-supportive organisational climates, inadequate budget allocation, outdated policy or work instruction, obsolete resources or equipment, lack of recognition and rewards, and limited availability of specialised VET practitioners to backfill teaching roles (Callan et al. 2007; University of Ballarat 2009; Toze & Tierney 2010).

Industry barriers include a lack of consideration of how best to obtain a meaningful knowledge and/or skills exchange, issues surrounding accessibility and placement opportunities in local industries, and uncertainty about the capacity of the industry to provide access to up-to-date technology, equipment and processes (Toze & Tierney 2010). As Clayton, Fisher and Hughes's study (2005) shows, access is dependent on workplaces that maintain industry standards or engage in training using Training Packages. Moreover, limited business or industry operations in regional areas meant that the opportunity to undertake industry currency activities was significantly reduced across teaching disciplines. This situation is often exacerbated by geographic isolation, an ageing demographic profile, and institutional settings which are continually exposed to dynamic and rapid change, including technological advancements (Clayton, Fisher & Hughes 2005).

Finally, Toze and Tierney (2009) highlight the existence of dispositional or personal barriers in the maintenance of industry currency. They noted that VET practitioners frequently failed to maintain industry currency because of the difficulty of meeting the competing demands of work, family and time for themselves; the financial and time burden to undertake industry currency activities; insufficient industry networks and placement opportunities and attitudes which predominately undervalue the notion of industry currency.

Professional obsolescence

Although a theory of occupational obsolescence was formed as early as the 1930s (Tugwell 1931), the term professional obsolescence first appears in the literature in the 1960s (Mahler 1965; Ferdinand 1966; Rothman & Perrucci 1970). Since that period a significant amount of research has been undertaken examining obsolescence in a range of professional domains. Engineering and information technology professionals, in particular, have been the subject of considerable examination in this regard.

In clarifying the term, Chauhan and Chauhan (2009, p.1) assert that 'the most commonly subscribed definitions of obsolescence are those related to job performance', whereby there is 'a discrepancy between job performance and an expected level of competence which incorporates new knowledge being introduced into a profession'. Kaufman (1974) also emphasises that obsolescence is concerned with the inability of the professional to maintain effective performance due to the lack of current knowledge and skills. Fossum, Arvey, Paradise and Robbins (1986) moved beyond the idea of a lack of skills to include the element of gradual erosion of knowledge and skills over time.

Obsolescence occurs when the person's requirements of a job which are demanded by its tasks, duties and responsibilities become incongruent with the stock of knowledge, skills and abilities currently possessed by the individual; given that the knowledge, skills and abilities were previously congruent with job demands (Fossum et al. 1986, cited in Chauhan & Chauhan, p.1).

There is an additional aspect that relates to attitude, which is reflected in the professional's failure to 'maintain flexibility in attitude and approach, and to changing problems and conditions' (Mahler 1965, cited in Chauhan & Chauhan 2009, p.2).

In some of the earliest work on the topic, Ferdinand (1966, cited in Laufer 1987, p.10) provides a wider definition, one which highlights three forms of obsolescence:

- Where the scope of a professional's technical competence does not encompass the furthest reaches of knowledge and technique that inform their discipline.
- Where a professional has inadequate knowledge of their own speciality.
- Where an individual's knowledge is inadequate as compared with the general body of knowledge that is relevant to the specific tasks he or she is required to perform.

Associated with the latter form is the loss of contact with developing knowledge in the profession. This form is particularly relevant to professionals who, as they progress in their careers, are confronted by the added complexity of maintaining both technical expertise and expertise in a management role (dual professionalism, addressed in more detail later on in this chapter).

Causes of obsolescence

In a knowledge society, professionals are not operating in a constant environment, nor can they simply make use of what Jensen (2007, p.489) terms 'once obtain[ed] competence'. By its very nature, the work of professionals entails engaging with ideas and materials that are subject to ongoing change (Chaudhary & Agrawal 1978). They are also required to 'keep up with dramatically changing networks and to engage in continuous learning and relearning' (Jensen 2007, p.489). In light of this, obsolescence is most likely to be a fact of life for all professionals, although the rate of obsolescence is likely to differ from one profession to another and from one individual to another. As suggested by Pazy (1990, p.260), 'at different periods in their professional lives, people attend to different aspects of this threat'. Despite this potential for variation within the professional workforce, the problem of obsolescence is perceived to be a significant one. For example, in 2004 Covey (p.295) suggested that more than 20 per cent of the workforce was becoming obsolete and that 'unless they rededicate and reinvent themselves, within a few years, another 20 per cent' would be so.

What then are the key causes of this phenomenon? In the literature, there is considerable evidence to support the idea that a number of interrelated factors contribute to the broadening gap between the professional knowledge and skills possessed and those that are required by professionals in any number of different fields of endeavour.

The demands of change

First and foremost amongst these factors is rapid innovation in technology. Such advancements make previously acquired knowledge and skills transient, outmoded and ineffective (Burack & Pati 1970, cited in Chauhan & Chauhan 2009). Professionals working in the information technology arena, for example, are confronted by what has been variously described as constant technical skill depletion (Tsai, Compeau & Haggerty 2007) and never-ending competence-destroying innovation (Tushman & Anderson 1986, p.440). Similarly, Kreiner (2006, p.227) suggests the engineering field is at 'the epicentre of an explosion in new knowledge'.

Under these circumstances, technical professionals across a broad range of industries are required to keep abreast of the advances being made in a range of fields and to learn new ways of working as innovations emerge. The critical importance of updating is emphasised by a number of authors who suggest that, such are the changes to technology, currency becomes an issue of concern for many professionals almost immediately after they complete their initial university education. Kreiner (2006, p.227), for example, proposes that the 'technical half life' of the vocational knowledge of engineers

is something less than a decade, while Joseph and Ang (2001) suggest that for IT professionals, the half-life is less than two years.

Dubin (1972, p.487), who studied obsolescence in psychologists, defined this phenomenon in the following way:

The half-life of a professional's competence can be described as the time after completion of professional training when, because of new developments, practising professionals have become roughly half as competent as they were upon graduation to meet the demands of their profession.

However, the obsolescence of knowledge does not always occur in an overtly rapid way as an outcome of technologically driven change. Instead it can be much more insidious in the way that it emerges. For example, relatively small changes in policy that result in enhancements in practice can have a subtle but ongoing impact upon the competencies demanded of professionals (Rahman & Velayutham 1998). The growing emphasis on sustainable practices in the workplace is a prime example of this.

While the emergence of new knowledge is a major factor in obsolescence, the currency and durability of professional knowledge and skills are also greatly influenced by the personal approach adopted by an individual to learning and relearning in the face of workplace change.

Personal factors

In the instance where an individual does not have the aptitude or the ability to undertake the continuous learning that is needed to 'keep up to speed' with changes in the workplace, obsolescence is the inevitable outcome. Chauhan and Chauhan (2009) suggest that in this case a range of cognitive factors may come into play. These include individual denial of obsolescence, a lack of awareness of the presence of change in an area of specialisation, or a degree of complacency about the need to develop new skills. A loss of contact with what is occurring in the technical world beyond the current workplace can generate this sense of complacency. Equally critical in an individual's approach to maintaining professional competence are a lack of confidence in one's ability to keep current and/or a straight-out resistance to change.

Also highlighted in the literature is the fear of obsolescence itself (Chauhan & Chauhan 2009). In a study of electrical engineering, computer science, mathematics, metallurgy and chemical engineering professionals in Israel, Pazy (1990) found that the fear of obsolescence was most evident in professionals in the mid- or late stages of their careers and its presence had a negative impact upon their confidence when making technical judgments and on their sense of self as professionals. A similar sense of fear is also particularly evident with professionals working in the ICT industries, a fact confirmed by Tsai, Compeau and Haggerty (2007, p.396), who suggest:

The fear of obsolescence and the continual pressure to stay up-to-date through constant learning and retooling is an added stressor on top of an already demanding workload and tight deadlines.

Career stage and dual professionalism

There is also some debate in the literature about whether age and career stage and dual professionalism are determining factors in individuals' active engagement in updating activities. Pazy (1990) in her research found that perceptions about updating vary according to the stage at which professionals are in their careers. Those newly graduated, for example, are still considered to be learning, therefore, it is appropriate for them to be undertaking developmental activities to enhance their expertise. In marked contrast, for those professionals more advanced in their careers, the opportunities for updating tend to become somewhat reduced. Here 'one was now expected to know more than to learn' (Pazy 1990, p.262).

Given these findings, it is clear that dealing with obsolescence requires organisations to be much more aware of where people are in their careers when asking them to learn about and engage with new technologies or new ways of working. Hence, Pazy (1996, p.60) suggests, the individual's point of view is also very important in determining the best upskilling strategy for them. Assuming that different jobs at different phases of professional careers require different kinds of knowledge mastery, an undifferentiated approach might conceal the specific of combating obsolescence at these various jobs and phases.

The second challenge in countering obsolescence is recognition of the issues associated with dual professionalism. Various authors emphasise the fact that there is a tendency for professionals to become out of touch with their technical knowledge and skills after they progress into management positions (Pazy 1996; Chauhan & Chauhan 2009). The demands of managing both people and the business often take more senior people away from technical professional updating. Tsai, Compeau and Haggerty (2007, p.400) go as far as to suggest that crossing from the technical to the managerial side of things is 'a great escape for those who plan to avoid the necessity to update'. The point to be made here is that, when skilled and highly experienced professionals move into management positions, their technical expertise is likely to be eroded as they either choose to avoid updating activities or have no time to undertake them because of their new duties. Therefore, any dependence upon this group for technical advice, support and the mentoring of others may well be misplaced.

Organisational factors

Organisational factors impacting on obsolescence are described by Chauhan and Chauhan (2009, p.2) as being job-related, relationship-oriented and systems-related. In the first of these, obsolescence may be an outcome of a disjuncture between the individual and the job that the professional is required to undertake. It can also occur as an outcome of exclusion from the processes of decision-making and from a lack of autonomy in determining how work is to be undertaken. A lack of supervisor support for updating activities is also influential, as are ineffective organisational policies and practices, including a lack of reward or recognition, poor performance appraisal approaches and structural barriers to progression and promotion. Where an organisation has not developed a plan of action or educational activities to respond to technological advances as they emerge, obsolescence is an inevitable outcome.

What obsolescence looks like in practice

Drawing on the work of Dubin (1971), Chauhan and Chauhan (2009, p.3) describe a number of symptoms of professional obsolescence that might be exhibited by one professional group – engineers. These warning signs include a decreasing ability to come to terms with new technical concepts, innovative technical papers and novel materials as they emerge, while new projects may 'begin to look too difficult to be practical'. Further, the engineers' disconnection from critical contemporary knowledge means that colleagues no longer seek advice on technical matters. Accompanying these signs may be a reluctance to apply rigorous mathematical techniques in the solution of problems. Trimmer, Blanton and Schambach (1998) highlight this lessening of applied problem-solving ability as a key manifestation of professional obsolescence. Importantly, opportunities for undertaking continuous professional education may either be ignored or actively avoided, with the inevitable outcome being a loss of confidence and self-esteem in the individual concerned.

Various authors contend that the presence of occupationally obsolete individuals in a work team ultimately impacts negatively upon the productivity of that team (Chauhan & Chauhan 2009), while

Laufer (1987, p.14) suggests a more damaging outcome might be that 'newly-trained professionals who represent a threat to the obsolescent professional are not accepted into the system'. Summarising these views, Harel and Conen (1982, p.13) highlight the potential impact of professional obsolescence on an organisation. They suggest:

Symptoms of knowledge obsolescence are associated with tremendous costs to the organizations and individuals affected. Among such costs, both direct and indirect, may be low job satisfaction and morale, limited advancement opportunities, high turnover and absenteeism, and restricted productivity.

To address the ill effects of the erosion of skills, organisations must take a strategic approach to developing their professional workforce. For the individual, a commitment to vocational competence is crucial, particularly if they wish to maintain both their professional identity and membership of a relevant professional body.

Staying current, maintaining competence

To combat the negative impacts of skill loss, it is clear that there needs to be a process whereby the old skills and knowledge are revitalised in parallel with the new ones being acquired. In the literature there is a consensus that updating is the most straightforward way of ameliorating the ravages of obsolescence. The first step in this updating process is determining the knowledge and skills required by an individual to perform competently in their current area of work.

In the case of engineers, for example, Kreiner (2006, p.228) suggests this includes updating activities which extend:

- awareness of what other engineers are doing in the engineer's own or related fields
- knowledge of specialised technologies and techniques not covered in the original professional preparation
- knowledge of the new technologies and techniques, new processes and materials which have been introduced since the original professional preparation ended
- details of new requirements imposed on the engineering profession such as health and safety, regulatory requirements, product liability laws, environmental considerations, ethical considerations
- management skills connected with the projects, that is, financial control, marketing, outsourcing, maintenance, warranties.

It is not unreasonable to suggest that these very same requirements are relevant to practitioners in any field, including those in VET, particularly if they are concerned to retain their critical competitive edge. Being aware of what is happening in related spheres, and being knowledgeable about new specialisations and new ways of working are all crucial aspects of vocational currency, as is familiarity with new processes, materials and resources. Being fully cognisant of work-related legal requirements is an additional aspect of competent performance, regardless of location or vocation. Clearly, all of these come together as a much broader concept than the narrow way by which industry currency is interpreted in VET.

Glass (2000, p.15), in discussing personal technical obsolescence amongst IT professionals, offers the view that currency can be maintained by keeping up to date with two things: 'the state of the art, and the state of the practice'. The former, represented by the relevant literature in the field, he

suggests, is relatively easy, as it is readily available to all who choose to seek it out. The latter – what is happening now in the field of practice – is much more problematic. The reason for this is that:

Most practitioners are only familiar with the world of the enterprise(s) immediately around them. But different enterprises may be at very different places in their state of the practice ... Thus most practitioners only have a narrow and distorted view of the state of the practice, and most academics have no meaningful view at all (Glass 2000, p.16).

In making this statement, Glass highlights just how complex the issue of maintaining vocational currency is for both the professional and those who have the responsibility for their continuing professional education. This would be equally true of VET practitioners and the organisational or professional development personnel charged with the task of supporting staff development in registered training organisations.

Given the breadth of the expertise required, a holistic approach to upskilling is invariably the solution recommended by the majority of authors on the topic. Activities designed to update both the art and practice may involve immediately relevant learning that occurs incidentally during the performance of work, or they may take a much more deliberate approach, whereby the worker becomes a student learning about something which may or may not be immediately applicable to the current work requirements (Pazy 1996). Either way, the individual, the organisation and the professional body to which they belong are all seen to play a pivotal role in maintaining vocational currency.

Updating strategies

While there are diverse views in the literature on appropriate approaches, the strategies for updating professional knowledge and skills can be generally clustered under the following broad headings:

- undertaking structured learning opportunities, including formal qualifications through educational institutions and/or formal or non-formal courses provided in organisations and by professional associations
- accessing literature, informational materials and resources in the specific field of vocational practice
- engaging in informal work-based learning, including problem-solving, which is generally designed to enhance knowledge and lift productivity in the workplace
- engaging in incidental learning through interpersonal exchange.

The first of these would appear to be relatively straightforward, generally coming under the purview of educational institutions, registered training organisations and professional associations. Such continuing professional education can be either accredited or non-accredited, but is generally formally structured and includes such activities as specifically tailored technical training courses, higher education programs, seminars, workshops and conferences. Importantly, initial education programs for professionals develop an explicit culture which emphasises the importance of continuing professional development and a career-long commitment to the maintenance of vocational competence (Pazy 2004). This is not necessarily the case in the initial training of VET practitioners.

In the second component of updating, there is an expectation within professions that they keep abreast of developments by accessing the technical literature in relevant and related fields and new resources and equipment as they become available. A similar expectation probably exists for VET

practitioners, particularly those who are working directly with industry in the delivery of training in the workplace.

For some professionals, such as those in ICT, this aspect is becoming more and more of a challenge, although access has been greatly enhanced by the same technology driving change in the field. With the ICT explosion of knowledge, Tsai, Compeau and Haggerty (2007, p.400) suggest:

Individuals must decide on a practical level of breadth and depth of technical competence, just like a general who must choose which battles to win and which to lose in order to win the war. IT professionals could strategically prioritize their skill updates, recognizing that there are multiple avenues for remaining competent [and current] at work.

The next two components – incidental learning and informal work-based learning – are much more complex strategies in the war against obsolescence because they are either unplanned activities or undertaken independently by individuals. Despite this difficulty, it is acknowledged that the value of such learning is considerable. Various authors describe the conditions under which such learning can flourish, a brief discussion of which follows.

Getting the climate right

There is considerable discussion in the literature about organisational climate and its impact upon a professional's motivation to update or not update. Joseph, Kuan Koh and Hao Foo (2010, p.5), synthesising the work of earlier authors propose that:

An organization updating climate represents individuals' socially influenced perception of technologies, management policies, supervisor practices, peer relationships and other salient work environment features.

To be effective, updating requires an organisational climate in which policies and practices are supportive of continuous professional development, actively promote upskilling activities and reward those who engage in those activities (Pazy 1996; Guttel et al. 2009). In a study of dynamic research and development intensive organisations, Guttel et al. found that keeping pace with new knowledge as it emerged was a major organisational imperative, as was the development of a climate which provided incentives for keeping employee competencies current. Such a climate demands the critical support of supervisors and, where possible, the adaptation of the working environment to open up opportunities for the peer interaction and knowledge exchange which are seen to be so vitally important in lessening the impact of obsolescence (Trimmer, Blanton & Shambach 1998). In addition, consideration needs to be given to structures and processes that enhance knowledge transfer and informal learning, which may ultimately require the redesign of jobs and the development of flexible team structures (Guttel et al. 2009).

Adopting a strategic approach

To combat obsolescence in a workforce, organisations need to adopt a strategic approach. Guttel et al. (2009, p.128) promote 'reflexive strategies', including the ongoing and structured evaluation of organisational capability to determine what is required to remain successful in a highly competitive market. This front-end analytical process involves taking account of the variations in obsolescence which are likely to be present across the professional workforce, with the individuals most likely to be affected by the rapid emergence of new knowledge being given priority access to updating (Harel & Conen 1982). The importance of taking a strategic and targeted approach is further emphasised by Pazy (1994, p.1187), who cautions that:

Undifferentiated, organization wide updating programs, which do not resonate with the views adopted by specific groups, would be less effective compared to tailor-made activities that fit particular climates.

Encouraging collaborative learning

A major factor in getting the climate right is the creation of a social environment in the organisation which not only actively encourages and supports updating but emphasises it as an obligatory activity that most likely will involve collaborative learning. Activities that encourage a collegiate approach to learning such as mentoring, coaching and peer review are seen to be successful mechanisms for stimulating further learning. Reinforcing this view, Kreiner (2006, p.228) suggests that:

Rubbing shoulders with professionals who are truly immersed in their practice has a strong motivational influence, particularly when the on the job experience is at the cutting edge of the field.

Individuals engaging actively in communities of professional practice, including those supported by the professional associations relevant to their field of endeavour, is consistently raised as a pivotal strategy in avoiding crippling obsolescence. As mentioned earlier, the role and focus of these bodies is to enhance the profession by interpreting and implementing current standards, offering opportunities for continuing education and generally advancing professional knowledge. Involvement in the activities conducted by these associations offers the individual the chance to maintain connections with the field and innovations as they emerge and to exchange ‘professional opinions on topics of contemporary interest’ (Kreiner 2006, p.229). Further, there is considerable learning possible within communities of practice, where ‘knowledge bases only partially overlap’ (Pazy 2004, p.448).

Learning about practice, through practice, in practice

There is considerable consensus in the literature that the nature of work is influential in motivating individuals to update, particularly if the work they are involved in continues to be intellectually challenging (Trimmer, Blanton & Schambach 1998; Harel & Conen 1982). Work that stretches the individual beyond what Chauhan and Chauhan (2009, p.657) term ‘the confines of one’s own job profile’ helps to enhance competencies and build professional autonomy. Thus, engaging in activities such as project work and complex job assignments that represent a distinct shift from day-to-day routine work can be an effective mechanism for keeping professionals current and motivated to remain that way – a factor that needs to be taken into account with the allocation of work tasks. Pazy (2004, p.448, emphasis in original) contends that ‘expertise should not be the sole criterion; a learning opportunity – i.e. insufficient expertise – should also be considered. Under the proper conditions, lack of knowledge might spark updating.’ Inevitably, this requires individuals to be willing to acknowledge their skill deficits and take up the increased responsibilities, challenges and associated learning that attaches to such tasks (Chauhan & Chauhan 2009).

Discussing obsolescence in a higher education setting, Knight (1998, p.248) argues that professional development activities designed to ameliorate obsolescence are most effective when they take into account ‘departmental cultures’ and the local context. Learning that is ‘embedded in the rhythms of daily work’, Knight (1998, p.254) suggests, has a number of distinct advantages.

- It is located within existing activity systems (departments).
- Learning is contextualised and situationally specific.
- Learning is embedded in work that has to be done anyway, rather than being an additional activity.

- It is an example of learning-by-doing.
- Team and collegial approaches are necessary.
- Intrinsic motivation may be enhanced by involvement in program planning.

Confirming this view, Regehr and Mylopoulos (2008, S22), emphasise that, by simply working through the problems raised in the day-to-day conduct of work, there are many potentially powerful ‘practice-embedded’ learning opportunities.

Updating for the here and now

In a similar vein, Pazy (1996, p.72) in her investigation of obsolescence in Israeli professionals found that the current job being undertaken by an individual was ‘both a primary means and a primary motive for updating’. Where the learning strategies are specifically tailored to meet the present job role and are capable of being immediately applied in the workplace, the motivation and outcomes of the learning process are likely to be more positive. If this is the case, continuing professional development activities designed to counter obsolescence clearly need to be highly practical and relevant, as well as designed to meet job-specific short-term objectives addressing the here and now.

Many of the updating strategies highlighted in this section do not require significant resourcing or the interruption of the daily work of teaching teams. Opening up opportunities for people to interact with purpose, to undertake challenging work assignments and to work with experienced others can all occur in the workplace. The effectiveness of these approaches is, however, dependent upon an organisational climate in which updating efforts are openly supported and applauded.

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C Continuing professional development website analysis

Professional and regulatory bodies in Australia and across the developed world aim to protect the public and advance professional practice by developing and maintaining the professional standards and codes of behaviour that ensure continuing competent practice by industry professionals. These professional obligations are usually governed by some form of legislation (at a national or state/provincial level) and are supported by a raft of professional standards, codes of behaviour and various by-laws enacted by designated professional organisations. Importantly, the associations that register and support each profession mandate the continual renewal of the vocational skills and knowledge of individual members.

The importance to some scholars of continuing professional development (CPD) for the maintenance of vocational competence cannot be overstated. In the field of nursing, for example, Lenburg (1999, p.2) notes that ‘perceptions and expectations related to competence are being reconceptualised and redesigned to be more responsive to escalating changes’. In a similar vein, Lester (1999) argues that the main driving force behind continuing professional development for many professionals is the constantly evolving nature of the roles and tasks they are being required to undertake and the need to demonstrate credibility and maintain a reputation for competence with key stakeholders.

Despite these views, continuing professional development as a concept is often imprecise. Muijs and Lindsay (2008, p.196) contend that in many instances it is:

conflated with the related concepts of in-service training and on-the-job learning. Both are more limited than CPD, as CPD can encompass a wide variety of approaches and teaching and learning styles in a variety of settings (inside or outside of the workplace).

In this study, the websites of six professional organisations that function at state/provincial, national and international levels were examined and the data analysed. The websites consulted were those directly relevant to the vocational areas identified as the focus of this research. They included:

- Australian Health Practitioner Regulation Agency (with reference to the Australian Nursing and Midwifery Council)
- College of Registered Nurses of British Columbia
- Australian Human Resources Institute
- Human Resources Professional Association (Canada)
- Engineers Australia
- Institution of Civil Engineers (UK).

The data were collated under specific headings designed to provide an overview of the role and purpose of the professional bodies in relation to the development and maintenance of appropriate standards, policies and procedures to ensure continuing currency and ethical practice at all levels.

The aims and objectives stated by the various organisations are broadly similar and include: to advance professional practice in the specific discipline and promote the contribution of their profession in society; to champion professional and ethical conduct; and to encourage a culture of

lifelong learning. In addition, in the interests of the profession and the public, all of these organisations sought to play a significant role in developing and maintaining competency standards and codes of practice and to develop ways to achieve continuing competence.

As would be expected, the strategies employed to meet the organisation's objectives had many common elements. Most organisations provided access to ongoing education by facilitating a range of accredited courses and training, and providing members with detailed information about the requirements for professional registration in their discipline. The information given online stipulates the requirements of the continuing professional development policies at each level of practice and provides members with the ability to record their continuing professional development online, or directs members to the documents that will assist them to keep the appropriate records for verifying the requirements for continuing competence/registration.

The measures applied to verifying the continuing competence of professional members were also similar across the disciplines. All professional groups determined that the minimum requirement for membership was the relevant accredited undergraduate degree or the equivalent knowledge and experience, as assessed by the professional body. Various organisational policies determine the amount and types of continuing professional development and other continuing education mandated for new graduates and for each level of experienced practitioner or for specialist practitioners. All the evidence of compliance to the continuing professional development policies must be documented and submitted for assessment or audit by the appropriate assessing body. Depending on the particular discipline, there is also an obligation to verify a minimum number of hours or months of practice over the previous three- or five-year period. Nursing also requires an ongoing process of self-assessment, peer feedback and the identification of areas for learning and skill development, which are to be recorded and included in a personal learning plan.

The desired outcomes across the groups include ensuring the highest possible standards of practice with a competent workforce and safe practice. Increased numbers of practitioners are making sure that their careers progress by meeting the professional standards for ethical practice and making a commitment to lifelong learning and improvement of their practice. The professions of nursing and engineering are characterised by official legislation that drives mandatory compliance to designated standards and codes of behaviour; however, all professional bodies strive to achieve and maintain high standards of continuing competence for practitioners to protect both the public and the reputation of their profession.

The objectives of human resource management professional associations are seen in terms of regulatory oversight, but also in terms of building the profession's credibility, emphasising the career development of members and increasing effective services for members. Engineering associations tend to focus on career advancement for members via formal qualifications, experience and professional development that encourages members to achieve chartered status, which indicates leadership in their field of practice and is the highest endorsement of professional engineering practice. For nursing, individuals' learning needs are identified through reflective and peer-reviewed practice. From this, a learning plan based on those needs is formulated, which is followed by the completion of the designated learning activities relevant to the area of practice and also contributing to the development of others. This approach aligns well with the critical conditions for updating previously outlined.

What is evident from the brief analysis presented here is that professional bodies emphasise continuing professional development that includes a range of development activities which together ensure the maintenance and growth of professional competence. Structured learning opportunities such as formal qualifications and short courses play a significant role for engineers, human resource managers and nurses, as does their active engagement in professional networks for both personal development and the development of others. At the same time, considerable emphasis is placed on the personalised nature of continuing professional development. Individual learning plans, self-directed learning and activities that involve learning about practice through practice in the workplace are encouraged, and both the formal and informal are given equal status in the reporting of developmental outcomes.

There are also some words of caution in the literature about the mandating of continuing professional development by professional associations. Lester (1999, p.8), for example, argues:

In setting up continuing professional development schemes, professional bodies are typically aiming both to encourage practically relevant updating and development among their members and provide a means of demonstrating that members are maintaining their competence. While these aims should ideally be mutually supportive, an overemphasis on demonstration and policing can promote a culture of conformance rather than one of professional capability and development.

While continuing professional development as implemented by the professions is not the total solution to professional obsolescence, it does provide a framework for the ongoing maintenance of skills and knowledge for those who elect to use it in the manner encouraged by the professional associations. In the Australian VET sector, however, not all practitioners have access to or are members of such bodies. Professional development and the issue of currency are therefore the business of individual practitioners and the training organisations that employ them.

D Interview questions

The following pages contain the interview questions for each of the stakeholder groups included in the study together with a pre- interview questionnaire for participants from knowledge-based organisations.

1. Employers: Printing/Graphic Design, Plumbing, Hairdressing
2. Auditors
3. Industry Skills Councils in related industry areas
4. Professional Associations in related industry areas
5. Learning and Development Managers: Knowledge-based organisations
6. Pre-interview questionnaire: Knowledge-based organisations

1. Questions for employers

Employer/Organisational details

a. What is your primary business activity:

Printing/graphic design

Plumbing

Hairdressing

b. How many staff do you employ? 1- 20 21- 40 41 - 99 100 plus

c. Where is the business located?

Metropolitan location

Regional location

State

d. Would you briefly describe your role in the business/company?

Specific Interview Questions

1. Why do you undertake training in your business?
2. Who in your business undertakes training? (e.g. specific individuals, specific groups (managers, technicians, tradespersons) apprentices, trainees ?)
3. What sort of training do your employees undertake? (e.g. formal qualifications, informal training, vendor/ product training?)
4. What type of training providers do you use? (e.g. TAFE, private providers, vendor training?)
5. How do you choose a training provider? (Prompt questions: Is choice of the actual trainer important to you if so why? Are you able to exercise any control over the actual choice of the trainer?)
6. Are you familiar with the term industry currency (and/or vocational competence or technical currency) in relation to VET trainers?
7. According to your understanding, what is industry currency?
8. Industry currency (also known as vocational competence and technical currency) is described in the Australian Quality Training Framework (AQTF) as follows: 'Vocational competence is defined as broad industry knowledge and experience, usually combined with a relevant industry qualification. A person who has vocational competency will be familiar with the content of the vocation and will have relevant current experience in the industry.'

Do you think this adequately describes what industry currency is or should be? If not, why not? What would you add, remove or change?
9. Is the industry currency of trainers important in your industry?

10. Is trade specific knowledge important for trainers in your industry?
11. When you are engaging a trainer do you ask questions about their industry knowledge?
12. Under the Australian Qualifications Training Framework (AQTF) RTOs are required to ensure that training and assessment is delivered by trainers and assessors who:
 - (a) have the necessary training and assessment competencies as determined by the National Quality Council or its successors, and
 - (b) have the relevant vocational competencies at least to the level being delivered or assessed, and
 - (c) can demonstrate current industry skills directly relevant to the training/assessment being undertaken, and
 - (d) continue to develop their Vocational Education and Training (VET) knowledge and skills as well as their industry currency and trainer/assessor competence. (AQTF 1.4)

In your experience is it always the case that these requirements are being met? How can you tell if these requirements are not being met? (Prompt question: Based on your opinion, what knowledge, skills and attributes would an industry trainer demonstrate to indicate they were current in their understanding of your industry?)

13. If you were (or when you are) considering training for your staff how important to your decision is the actual trainer's knowledge of your industry/trade?
14. Is industry currency more or less important depending on the type of training you are doing e.g. training an apprentice, formal or informal qualifications, or for a clear vocational outcome?
15. Industry currency can be reflected in a number of ways:
 - The teaching/instruction - such as instructor's knowledge of subject matter, the balance between instruction and practice, and appropriate assessment methods.
 - The Training - subject content reflecting industry practice.
 - Training materials - relevant and up to date.
 - Equipment and resources - quality and currency of equipment at the RTO/accessed by the RTO.

Which of these is most important for your industry? Are there other things you would look for?

16. Do you ever discuss these issues with RTOs/industry trainers?
17. Has technological change affected the way you work/your industry operates? If so how?
18. How do you ensure employees are up to date with technology changes?
19. Is keeping pace with changes an important issue for you as a small/large employer? How could an RTO assist you with this?
20. What other changes/trends in your industry need to be addressed by trainers e.g. changes to industry regulation, customer/client demand, changing skill requirements and product development are stimulating rapid industry transformation.

21. What are your expectations of the capacity of VET trainers to assist you in these areas?
22. If you use different types of providers do you notice any difference in their trainers' industry currency?
23. A number of strategies are used by trainers to maintain their industry currency what value would you attach to the following:

	High	Medium	Low
Consultations with industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Continuing to work in industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Keeping abreast of regulatory changes and/ or occupational licensing requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mentoring apprentices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Industry release/return to industry/shadowing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Participating in formal (accredited) and/or informal (unaccredited) training or professional learning*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Membership of a professional/industry association	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reading trade journals/on line research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Research projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Individual industry/employer networks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attending trade days/exhibitions/conferences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What would you class as the 3 most important and/or are there others you would add?

What do you think an industry trainer should/could do to stay current in your industry?

24. Have you ever assisted with the professional development of VET trainers? If so how?
25. How could industry/employers assist trainers to remain current in your industry? (Prompt question: To what extent are your suggestions possible?)
26. What would it take to make this happen?
27. What are some specific actions that could/can be taken by employers?
28. Is there anything else you would like to say about this issue that we have not covered during the interview?

2. Questions for Auditors

1. Can you please briefly outline your experience as an AQTF auditor?
2. In what industries do you undertake AQTF audits?
3. Vocational competence (also known as industry currency and technical currency) is described in the Australian Quality Training Framework (AQTF) as: 'Vocational competence is defined as broad industry knowledge and experience, usually combined with a relevant industry qualification. A person who has vocational competency will be familiar with the content of the vocation and will have relevant current experience in the industry.'

According to your understanding, what is industry currency? Is it interchangeable with vocational competence?

Do you think the AQTF definition above adequately describes what vocational competence is or should be? If not, why not? What would you add, remove or change?

4. Under the Australian Qualifications Training Framework (AQTF) Element 1.4 RTOs are required to ensure that training and assessment is delivered by trainers and assessors who:
 - (a) have the necessary training and assessment competencies as determined by the National Quality Council or its successors, and
 - (b) have the relevant vocational competencies at least to the level being delivered or assessed, and
 - (c) can demonstrate current industry skills directly relevant to the training/assessment being undertaken, and
 - (d) continue to develop their Vocational Education and Training (VET) knowledge and skills as well as their industry currency and trainer/assessor competence. (AQTF 1.4)

How do you interpret and apply this standard in relation to industry competency?

As an Auditor what evidence do you use to determine compliance?

5. When you are auditing different types of providers e.g. TAFE, private RTOs, niche market RTOs, Not for Profit RTOs, enterprise RTOs, do you notice any differences in the way the RTOs maintain and develop the industry currency of their trainers? Do you interrogate what strategies they have in place to ensure compliance with 1.4 (c) and (d)?
6. In your experience is industry currency a significant risk factor for audit compliance? And, if so what can be done to mitigate this risk?
7. When you are auditing how do trainers/assessors demonstrate the knowledge, skills and attributes that indicate they are current in their understanding of an industry? Do you see any variance across providers or types of providers?
8. Changes to industry regulation, technological change, customer/client demand, changing skill requirements and product development are stimulating rapid industry transformation. What are your expectations as an auditor of the capacity of VET trainers to keep pace with these things?

9. A number of strategies are used by trainers to maintain their industry currency as an auditor what value would attach to the following as evidence of maintaining and/or improving industry currency?

	High	Medium	Low
Consultations with industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Continuing to work in industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Keeping abreast of regulatory changes and/ or occupational licensing requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mentoring apprentices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Industry release/return to industry/shadowing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Participating in formal (accredited) and/or informal (unaccredited) training or professional learning*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Membership of a professional/industry association	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reading trade journals/on line research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Research projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Individual industry/employer networks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attending trade days/exhibitions/conferences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(* Prompt examples - additional qualifications, vendor training, higher order VET training etc.)

What would you consider as the 3 or 4 strongest examples of evidence of maintaining and/or improving industry currency?

In your experience have you seen or heard of other strategies that are worthwhile?

10. Is there anything else you would like to say about this issue that we have not covered during the interview?

3. Questions for ISC's (IBSA, Service Skills Australia, Construction and Property Services Industry)

1. Can you please briefly outline your role at the Industry Skills Council (ISC)?
2. What is your specific role in maintaining the Training Package in: Printing/Graphic Design; Hairdressing or Plumbing?
3. In general terms what is the role of the Training Package in addressing the industry currency of trainers?
4. Vocational competence (also known as industry currency and technical currency) is described in the Australian Quality Training Framework (AQTF) as follows: 'Vocational competence is defined as broad industry knowledge and experience, usually combined with a relevant industry qualification. A person who has vocational competency will be familiar with the content of the vocation and will have relevant current experience in the industry. Vocational competency must be considered on an industry-by-industry basis and with reference to the guidance provided in the Assessment Guidelines of the relevant Training Package.'

Do you think this adequately describes what industry currency is or should be? If not, why not? What would you add, remove or change?

According to your understanding, what is vocational competence? Is it interchangeable with industry currency?

5. The ISC is given a specific role in addressing vocational currency (industry currency) through the Australian Quality Training Framework (AQTF) which states 'Training Packages include advice specific to the industry related to the vocational competencies of assessors. This may include advice on relevant industry qualifications and experience required for assessing against the Training Package or for specific qualifications within the package. The Training Package will also provide specific industry advice outlining what it sees as acceptable forms of evidence to demonstrate the maintenance of currency of vocational competency.'

How do you formulate the 'specific industry advice' regarding the 'evidence to demonstrate the maintenance of currency of vocational competency'?

Do you involve industry in formulating your advice to trainers/assessors in the training package? If so, what strategies do you use?

6. Under the Australian Qualifications Training Framework (AQTF) Element 1.4 RTOs are required to ensure that training and assessment is delivered by trainers and assessors who:
 - (a) have the necessary training and assessment competencies as determined by the National Quality Council or its successors, and
 - (b) have the relevant vocational competencies at least to the level being delivered or assessed, and
 - (c) can demonstrate current industry skills directly relevant to the training/assessment being undertaken, and

- (d) continue to develop their Vocational Education and Training (VET) knowledge and skills as well as their industry currency and trainer/assessor competence. (AQTF 1.4)

How do you interpret and apply this standard in relation to Training Package advice?

7. A number of strategies are used by trainers to maintain their industry currency from an industry perspective what value would you attach to the following as evidence of maintaining and/or improving industry currency?

	High	Medium	Low
Consultations with industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Continuing to work in industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Keeping abreast of regulatory changes and/ or occupational licensing requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mentoring apprentices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Industry release/return to industry/shadowing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Participating in formal (accredited) and/or informal (unaccredited) training or professional learning*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Membership of a professional/industry association	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reading trade journals/on line research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Research projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Individual industry/employer networks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attending trade days/exhibitions/conferences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(* Prompt examples - additional qualifications, vendor training, higher order VET training etc.)

In the industry you service, and in your opinion what would employers/industry consider as the 3 or 4 strongest examples of evidence of maintaining and/or improving industry currency?

In your experience have you seen or heard of other strategies that are worthwhile?

Do you know of any specific industry initiatives that assist VET trainers to maintain industry currency?

8. Changes to industry regulation, technological change, customer/client demand, changing skill requirements and product development are all stimulating rapid industry transformation. What are your expectations as Training Package Manager of the capacity of VET trainers to keep pace with these things?
9. Does the ISC ever assist with the professional development of VET trainers? If so how?
10. How could industry/employers assist trainers to remain current in your industry? (Prompt question: To what extent are your suggestions possible?)
11. What would it take to make this happen?

12. What are some specific actions that could/can be taken by employers?
13. Industry currency can be reflected in a number of ways:
- The teaching/instruction - such as instructor's knowledge of subject matter, the balance between instruction and practice, and appropriate assessment methods.
 - The Training - subject content reflecting industry practice.
 - Training materials - relevant and up to date.
 - Equipment and resources - quality and currency of equipment at the RTO/accessed by the RTO.
- Does the Training Package provide advice on how these things might be addressed by the RTO and/or trainer?
14. Is there anything else you would like to say about this issue that we have not covered during the interview?

4. Questions for Professional Associations (Master Plumbers' Association , Hair & Beauty Australia, Printing Industries Association of Australia)

1. Can you please briefly outline the role of the Association and your specific role in the Association?
2. Does your industry mandate continuing professional learning for your members?
3. Does your industry have quality standards and/or regulatory requirements that have to be met? If so, how do you ensure these across the membership? Does this require training?
4. How is professional learning reflected in the membership criteria for your Association? e.g. in a Code of Professional Standards?
5. Do your members undertake training? If so, what sorts of training do your members (and their employees) undertake? (e.g. formal qualifications, informal training, vendor/ product training?)
6. Are you familiar with the term industry currency (and/or vocational competence or technical currency) in relation to Vocational Education and Training (VET) trainers?
7. According to your understanding, what is industry currency?
8. Industry currency (also known as vocational competence and technical currency) is described in the Australian Quality Training Framework (AQTF) as follows: 'Vocational competence is defined as broad industry knowledge and experience, usually combined with a relevant industry qualification. A person who has vocational competency will be familiar with the content of the vocation and will have relevant current experience in the industry.'

Do you think this adequately describes what industry currency is or should be? If not, why not? What would you add, remove or change?
9. Is the industry currency of trainers important in your industry?
10. Is trade specific knowledge important for trainers in your industry?
11. Under the Australian Qualifications Training Framework (AQTF) RTOs are required to ensure that training and assessment is delivered by trainers and assessors who:
 - (a) have the necessary training and assessment competencies as determined by the National Quality Council or its successors, and
 - (b) have the relevant vocational competencies at least to the level being delivered or assessed, and
 - (c) can demonstrate current industry skills directly relevant to the training/assessment being undertaken, and
 - (d) continue to develop their Vocational Education and Training (VET) knowledge and skills as well as their industry currency and trainer/assessor competence. (AQTF 1.4).

In your experience is it always the case that these requirements are being met? How can you tell if these requirements are not being met? (Prompt question: Based on your opinion, what knowledge, skills and attributes would an industry trainer demonstrate to indicate they were current in their understanding of your industry?)

12. If you are an RTO how does your Association ensure these requirements are met in your own trainers?

13. If you are not an RTO does your Association ensure these requirements are met in training providers that you may recommend to members?

14. Is your Association a Registered Training Organisation (RTO)? If not, go to Question 5.

If so, what sorts of accredited and/or non- accredited professional learning/training activities do you offer?

Accredited Courses Certificates Diplomas

Short Courses

IR/WPR

EO

OH&S

Leadership/Management

Industry Events/Briefings

Apprenticeship Services

Customised Training (workplace delivery)

Trade Exhibitions/shows/Conferences

15. If you are not an RTO do you assist your members to undertake professional learning? If so, how do you assist them? e.g. organising and/or facilitating training for your members

16. If you outsource training for members what type of training providers do you use? (e.g. TAFE, private providers, vendor training?) What sorts of things do you look for in an RTO? Is industry currency of the trainers an issue you raise with them?

17. Do you give advice to members about training and where necessary about choosing an RTO?

18. What sorts of things do you recommend that they look for in an RTO? Is industry currency of the trainers an issue you raise with them?

19. What sorts of things would you recommend they look for in an RTO that indicates their trainers are up to date in their industry knowledge, training and assessment techniques, access to current equipment etc.?

20. When you are engaging a trainer do you ask questions about their industry knowledge?

21. Industry currency can be reflected in a number of ways:

- The teaching/instruction - such as instructor's knowledge of subject matter, the balance between instruction and practice, and appropriate assessment methods.
- The Training - subject content reflecting industry practice.

- Training materials - relevant and up to date.
- Equipment and resources - quality and currency of equipment at the RTO/accessed by the RTO.

Which of these is most important for your industry? Are there other things you would look for?

- Is industry currency more or less important depending on the type of training that is being done? e.g. training an apprentice, formal or informal qualifications, or for a clear vocational outcome?
- Do you ever discuss these issues with RTOs/industry trainers on behalf of your membership?
- Has technological change affected the way your industry/members operates? If so how?
- Is keeping pace with changes an important issue and/or a risk factor for your industry sector? How could an RTO assist your industry with this?
- What other changes/trends in your industry sector need to be addressed through training? e.g. changes to industry regulation, customer/client demand, changing skill requirements and product development are stimulating rapid industry transformation.
- What are your expectations of the capacity of VET trainers to assist you in these areas?
- A number of strategies are used by trainers to maintain their industry currency what value would you attach to the following for your industry sector?

	High	Medium	Low
Consultations with industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Continuing to work in industry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Keeping abreast of regulatory changes and/ or occupational licensing requirements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mentoring apprentices	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Industry release/return to industry/shadowing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Participating in formal (accredited) and/or informal (unaccredited) training or professional learning*	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Membership of a professional/industry association	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reading trade journals/on line research	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Research projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Individual industry/employer networks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attending trade days/exhibitions/conferences	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What would you class as the 3 most important and/or are there others you would add?

What do you think an industry trainer should/could do to stay current in your industry?

29. If you use different types of providers e.g. TAFE, private RTOs, niche market RTOs, Not for Profit RTOs, enterprise RTOs - do you notice any difference in their trainers' industry currency?
30. Has your Association ever assisted with the professional development of VET trainers? If so how? (Prompt Question: Are RTO trainers able to attend events/courses/industry activities?)
31. How could industry/employers assist trainers to remain current in your industry? (Prompt questions: What are some specific actions that could/can be taken by employers? To what extent are your suggestions possible? What would it take to make this happen?)
32. Is there anything else you would like to say about this issue that we have not covered during the interview?

KNOWLEDGE-BASED ORGANISATIONS: LEARNING AND DEVELOPMENT MANAGERS

Name of organisation:	
Name of Interviewee:	Position:
Date of interview:	Interviewer:

1. Approximately what percentage of your workforce would you categorise as 'professionals'.
2. What are the major professional groupings in your organisation?
3. How is being "up-to-date" defined in this organisation?
4. To what extent does regulation, legislation or licensing impact on your professional staff keeping up-to-date?
5. To what extent does technological innovation impact on your professional staff keeping up-to-date?
6. How critical would you say having an up-to-date workforce is to your business? Why?
7. What impact do you think the presence of any skills obsolescence amongst your professional workforce might have on productivity?

8. Does your organisation undertake structured analysis of organisational capabilities and individual competencies in areas you deem critical to your competitive edge?
If YES, how frequently does this analysis occur and what form does it take?
9. How would you describe your organisation's approach and support for the upskilling of your professional staff?
10. In your Participant Questionnaire, you have indicated that you provide some developmental activities to maintain people's currency, who decides the form, the timing and the content of any skill up-dating activities? What form do these activities generally take?
11. What incentives or rewards are available for your professionals who continuously update their technical skills and knowledge?
12. What sanctions are in place for those who don't?
13. In this organisation, what happens to someone who is considered not up-to-date?
14. Finally, weighing up responsibility for maintaining professional competence and currency, what percentage do you consider lies with the organisation and what percentage lies with the individual staff member?
15. Any other comments

E Participant questionnaire

The participant questionnaire overleaf was completed by Learning and Development Managers in the nine knowledge-based organisations prior to interview. The information gathered provided baseline information about the organisations and perceptions about organisational climate and other aspects of support provided to professionals in the maintenance of the currency of their professional skills and knowledge.

QUESTIONNAIRE FOR ORGANISATIONAL PARTICIPANTS

Instructions: To ensure that we do not waste your valuable time with a long face-to-face interview, you are asked to complete this questionnaire before the interview takes place. For each of the following statements, indicate how much you agree or disagree by circling the option that best fits your view. The options are:

SD = Strongly Disagree; D = Disagree; A = Agree; SA = Strongly Agree; U = Unable to Rate (outside my scope of knowledge)

Organisational Updating Climate	Rating				
1. My organisation openly exhibits an encouraging attitude toward technological innovation.	SD	D	A	SA	U
2. Policies and processes are in place that emphasise the importance of updating.	SD	D	A	SA	U
3. The organisation actively encourages the professional growth of its professionals.	SD	D	A	SA	U
4. My organisation emphasises high professional standards.	SD	D	A	SA	U
5. Innovation is enthusiastically received within this organisation.	SD	D	A	SA	U

Information exchange	Rating				
6. Cooperation amongst professionals is the norm in this organisation.	SD	D	A	SA	U
7. Professionals share information about problems in unfamiliar technical areas.	SD	D	A	SA	U
8. Peers actively exchange information about current technological developments.	SD	D	A	SA	U
9. Peers frequently discuss articles and technical papers about professional topics.	SD	D	A	SA	U
10. Co-workers are willing to act as sounding boards for new ideas.	SD	D	A	SA	U
11. Information exchange amongst professionals is the norm in this organisation.	SD	D	A	SA	U
12. Concern for protection of proprietary information (or IP) restricts interaction with other professionals in similar organisations.	SD	D	A	SA	U

Reward policy	Rating				
13. In this organisation, up-to-date professionals have the best opportunity to obtain promotions.	SD	D	A	SA	U
14. This organisation has a performance appraisal system that rewards professional proficiency.	SD	D	A	SA	U
15. Employees who keep up-to-date on new technology/knowledge are well rewarded in this organisation.	SD	D	A	SA	U

Updating support	Rating				
16. Professionals are encouraged to use work-time for updating professional skills.	SD	D	A	SA	U
17. The organisation assists professionals in skill development planning.	SD	D	A	SA	U
18. This organisation allows 'flex-time' for professionals to pursue advanced qualifications.	SD	D	A	SA	U
19. The organisation limits training opportunities for its professional staff.	SD	D	A	SA	U
20. This organisation provides high quality in-house development activities for its professionals.	SD	D	A	SA	U
21. Jobs in this organisation are designed to allow professionals to explore new/advanced ideas.	SD	D	A	SA	U
22. This organisation reimburses tuition/fees for continuing professional education.	SD	D	A	SA	U
23. Peer reviews by supervisors identify professional development opportunities.	SD	D	A	SA	U
24. Supervisors recognise employees' efforts to remain professionally up-to-date.	SD	D	A	SA	U
25. Supervisors involve professionals in establishing learning goals.	SD	D	A	SA	U

Name: _____

Position: _____

Organisation: _____

THANK YOU FOR COMPLETING THIS QUESTIONNAIRE
YOUR SUPPORT IS APPRECIATED

G Defining the terms

There are a number of terms used in the report which require clarification. The first of these is vocational competence. In December 2009, the National Quality Council supported a recommendation from its Quality of Assessment Action Group to provide the following definition of the term for inclusion in training package qualifications.

Vocational competency is defined as broad industry knowledge and experience, usually combined with a relevant industry qualification. A person who has vocational competency will be familiar with the content of the vocation and will have relevant current experience in the industry.

Vocational competency must be considered on an industry-by-industry basis and with reference to the guidance provided in the Assessment Guidelines of the relevant Training Package (2010, p.2).

In the VET sector, up-to-date skills, knowledge and experience in a specific industry are also represented by the terms industry currency and technical currency. Element 1.4 of the Australian Quality Training Framework (AQTF) requires VET practitioners to continue to develop their vocational competency, with the special bulletin circulated by the National Quality Council (2010, p.2) noting:

Training packages include advice specific to the industry related to the vocational competencies of assessors ... The Training Package will also provide specific industry advice outlining what it sees as acceptable forms of evidence to demonstrate the maintenance of vocational competency.

Until developers make the required revisions to training packages, exactly what skills and knowledge will be required to confirm the maintenance of currency remains at the discretion of individual practitioners, their employers and ultimately those responsible for auditing Element 1.4 of the Australian Quality Training Framework (Guthrie 2010).

In the professions, the concept of vocational competence is generally described as professional competence and, while there are variations in the way the term is defined, the focus is generally on an individual's capability to perform a professional task to a level deemed acceptable in the profession. Competence is seen to include knowledge competence, problem-solving competence, business competence and ethical/personal behavioural competence (Cheetham & Chivers 1996; Kennie & Green 2001). Sustaining and building professional competence requires continuing professional development or continuing professional education, with both terms being used interchangeably in the literature. There are a number of definitions for each of these terms; however, the general thrust is that both are the means by which professionals continuously enhance their technical skills and knowledge throughout their careers.

In instances where this process of ongoing learning does not occur, professional obsolescence can occur. In simplest terms, this phenomenon is defined as 'a discrepancy between job performance and an expected level of competence which incorporates new knowledge being introduced into a profession' (Chauhan & Chauhan (2009, p.1).