

The Intermediate Skills Pool, New Apprenticeships and Skill Shortages

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Introduction

The purpose of this submission is to address item (b) of the terms of reference of the Inquiry of the Employment, Workplace Relations and Education References Committee into current and future skill needs: 'the effectiveness of current Commonwealth, state and territory education, training and employment policies, and programs and mechanisms for meeting current and future skills needs, and any recommended improvements'. The submission does this by highlighting the role of intermediate skills in the economy and the limitations of the New Apprenticeship system as a pathway to the attainment of these skills.

Access to the right skills is a key element of the success of enterprises operating in the most innovative sectors of the Australian economy. A recent study conducted by the Melbourne Institute for the Victorian Government showed that the skills and capabilities of key workers play a critical role in the growth strategies of enterprises in innovative sectors. These skills included both graduate and sub graduate level skills.¹

Nevertheless, skill shortages at trade or technician level are common in Australia.² One reason for this is that the pathway to the attainment of intermediate skills is unclear and poorly promoted. Too many school leavers are drawn to higher education and not enough are attracted to challenging vocational training.

Basic training in the routine skills that most New Apprenticeships provide does not supply the necessary foundation to enable further skills acquisition. Most New Apprenticeships, even at AQF Certificate Levels 3 and 4, have expected durations which are much less than the duration of work-based training for intermediate skills in other OECD countries.

This submission contends with evidence that bodies concerned with vocational education and training in Australia such as ANTA fail to give due attention to the role of intermediate skills in the economy. At the Associate professional skill level, for example, there is little or no research into the nature of the intermediate skills pool and the adequacy of the skill formation arrangements servicing that pool.

¹ Report submitted to Department of Premier and Cabinet, Government of Victoria.

² 'The presence of sustained skill shortages in Australian industry (particularly in manufacturing) continues to be a major problem'. Australian Industry Group, 2003, How competitive is Australia? How competitive is Australia? big issues call for big ideas, 24 June, p 14.

This submission presents new analysis of the New Apprenticeship system as a vehicle for intermediate skills formation, based on current data on AQF levels and expected durations.

Intermediate skills defined

Intermediate skills are specific occupational skills needed in jobs ranging from the trades to associate professional occupations. Intermediate skills are more demanding than routine or basic vocational skills and hence require more time to acquire and demonstrate in a variety of settings.³ Intermediate level skills have been defined as those skills that are above routine skills but below professional ones.⁴ They constitute a meaningful skill segment identifiable in most countries as craft or technician level skills.

In relation to Australia, intermediate skills refer to the

*‘skilled’ occupations requiring ‘a high degree of skill, usually in a wide range of related activities, performed with minimal direction and supervision. In contrast to operatives, persons in such vocations are competent to carry out a broad range of related tasks’.*⁵

They also include advanced clerical and service skills. They correspond to ASCO Skill levels 2 and 3.

Skill Level	Major Occupation Group
Skill Level 1	Managers & Administrators, Professionals
Skill Level 2	Associate Professionals
Skill Level 3	Tradespersons & Related Workers, Advanced Clerical & Service Workers
Skill Level 4	Intermediate Clerical, Sales & Services Workers, Intermediate Production & Transport Workers
Skill Level 5	Elementary Clerical, Sales and Service Workers, Labourers and related workers

³ In relation to Australia, the OECD Manual defines “skilled” occupations as requiring “a high degree of skill, usually in a wide range of related activities, performed with minimal direction and supervision. In contrast to operatives, persons in such vocations are competent to carry out a broad range of related tasks”. P44.

⁴ Ryan, P (1991) International Comparison of Vocational Education and Training for Intermediate Skills. The Falmer Press, London

⁵ OECD, 1999, Manual Classifying Educational Programmes Manual for ISCED-97 Implementation in OECD Countries, p 44.

Intermediate skills lack a specific identity in Australia

Intermediate skills in Australia do not have a specific identity in the post secondary education system apart from the traditional apprenticeship occupations. There is no well-defined vocational pathway aimed at intermediate skills more broadly. Nor is there information about the range of occupations where intermediate skills are identified as the requirement for entry and the nature of the demand for these skills in terms of wage levels and job vacancies. There are no specific Australian studies about associate professional skills requirements, for example, apart from one that focuses on intermediate skills in Victoria.⁶

Although the target for 2001 of the attainment of at least AQF Level 3 (skilled vocational level) was set for 60 per cent of 22 year olds by governments in 1991, this was not met. Nor is it a measure used in ANTA's May 2003 assessment of its 1998-2003 National Strategy for Vocational Education and Training.

The new strategy for ANTA for the period 2004-2010 entitled 'Shaping our Future' has just been endorsed in principle by the relevant state and federal Ministers.⁷ However, the summary of the strategy, which has been released publicly, does not differentiate between skill levels, despite aiming to give Australians 'world-class skills and knowledge.'

ANTA's assessment of its 1998-2003 national strategy only cites measures of post-school qualifications, not distinguishing between basic vocational and skilled vocational, which could have been done easily.⁸ The ANTA assessment acknowledges that 'despite the expansion of VET activity, Australia's educational attainment profile still lags behind the OECD average'. However, ANTA does not quantify this in any way.

Other assessments of the performance of the vocational education and training system in Australia do not refer to the skills profile of the workforce and how this compares to other OECD countries. The Productivity Commission's assessment of vocational education and training service delivery in its 2003 Report on Government Services does not provide data on the skills profile performance indicator, stating that 'it is yet to be developed or not collected for this Report'.⁹

⁶ A search of NCVER's VOCED database shows that there are no Australian studies of associate professional, para professional and intermediate skills apart from Curtain, R; 1999, Future directions in middle level training and further education: research report. Office of Training and Further Education, Victoria.

⁷ Australian vocational education and training ministers (VET) have endorsed in principle the next national strategy for vocational education and training for 2004-2010. *Shaping our Future national strategy agreed in principle*, ANTA Press Release 17.6.2003

⁸ For example: 'In May 2001, 32% of the workforce aged 25-64 had a VET qualification as their highest qualification. This level varied from 24% in the education industry to 57% in construction'. ANTA, 2003, *A Bridge to the Future: Australia's National Strategy for Vocational Education and Training 1998-2003 Preliminary Evaluation Summary*. May, p 20.

⁹ Report On Government Services 2003, Chapter 4, p 10.

Current state of intermediate skills pool

The reality is that between May 1994 and May 2000, the number of adults aged 25 to 64 years with the intermediate level qualifications of undergraduate diploma, associate diploma or skilled vocational qualification has only risen slightly in absolute terms from an estimated 2,066,700 persons to 2,277,900. However, as a proportion of the total workforce in this age group, those with intermediate level qualifications have remained static (from 22.9 per cent in 1994 to 22.6 per cent in 2000).

Comparative statistics, using now out-of-date 1996 data, suggest that Australia's level of intermediate skill formation is on par with New Zealand and Singapore, but considerably behind four major OECD economies (Germany, UK, France, and the USA).

Table 1: A comparison of qualification levels of Australia (1996) with UK, France, Germany, Singapore, USA and New Zealand (per cent of total population in each country)

Country	Population qualified to at least Level 3
Australia	19
UK	30
France	30
Germany	62
Singapore	23
USA	29
New Zealand	20

Source: UK Department of Education & Employment and the UK Cabinet Office, 1996 (for UK, France, Germany, USA and Singapore). Australian & New Zealand data have been computed by R Cullen, Workskills and National Competitiveness: External Benchmarks: Report No 2: Benchmarking Australian Qualification Profiles, Australian National Training Authority, Brisbane.¹⁰

The lack of identity for intermediate skills in Australia partly stems from the design of the New Apprenticeships program. The program includes both basic and relatively short-term training for routine skills as well as more demanding and prolonged training for

¹⁰ Level 3 refers to Matriculation pass to university in the UK (2 A levels), the equivalent in Germany (Arbitur), skilled vocational qualifications (NVQ3, GNVQ3, BTEC National Diploma, UK; Apprenticeships or Berufsfachschulabschluss, with real - or Haupt- schulabschluss, Germany; Baccalaureats: General, Vocational, Technological, France; Associate Degree, USA; completion of Year 12 & skill vocational and (some) basic vocational, Australia.

intermediate skills. A single brand label of New Apprentice applies to both basic vocational training and skilled vocational training. This single label does not send a clear signal to young people about which is the best means to obtain skills highly valued and in demand in the labour force.

Defining the pathway to Intermediate skills

I would like to propose three defining features of the skill formation process for intermediate skills. These are:

1. an initial training of sufficient depth that it enables direct entry to a recognised occupation;
2. initial training that provides the foundation for further skills acquisition and
3. a substantial period of training - at least two years to three years with at least some of that time spent on-the-job.

Entry point to a recognised occupation

First, the pathway to intermediate skills acquisition needs to provide sufficient training to enable direct entry, without further training, into a recognised occupation. According to the OECD, successful completion of such a training program should lead to a ‘labour-market relevant vocational qualification’.¹¹ The concept of a ‘labour-market relevant vocational qualification’ means that the skill level attained should enable the possessor to move between employers with full acknowledgement of his or her certified skills. This excludes programs that are basically aimed at using a period of work placement as a means of merely providing work experience to facilitate job entry.

Basis for further skills upgrading

A second defining feature of intermediate skills acquisition is that the vocational preparation should provide the basis for further skills upgrading. The OECD definition covering work-based programs of vocational preparation states that the program should provide a pathway to further education opportunities at tertiary level.¹² This means that intermediate skill qualifications should provide the necessary grounding to facilitate access to further opportunities to acquire higher level intermediate skills at the technician

¹¹ “Type 3 (vocational or technical): education which prepares participants for direct entry, without further training, into specific occupations. Successful completion of such programmes leads to a labour-market relevant vocational qualification” Manual For ISCED -97 Implementation In OECD Countries – 1999 Edition, p41.

¹² The criterion for completion at Level B3 in ISCED-97 (International Standard Classification of Education) requires the successful completion of a vocational or technical program that is designed to provide access to a Level 5 program such as ISCED 5B programs that “focus on occupationally-specific skills geared for direct entry into the labour market, although some theoretical foundations may be covered in the respective programs”. see *Manual Classifying Educational Programmes Manual for ISCED-97 Implementation in OECD Countries 1999 Edition*, p 42.& 58.

or associate professional level.

This capacity to progress to higher skill levels needs to be demonstrated in practice as well as being possible in theory. This requires that a significant proportion of intermediate skills holders actually do progress over time to acquire further skills at the higher level intermediate skill. The lack of progression may indicate that qualification holders have deficiencies in foundation skills such as literacy and numeracy or lack the underlying technical knowledge required as a prerequisite for further education and training.

Structured training for a minimum period

The third defining characteristic of intermediate skills formation is a minimum duration of time required to demonstrate competence to the required level of complexity. Intermediate skills of their very nature involve some complexity. This applies to both work-based program such as an apprenticeship arrangement and classroom training supplemented by experience on-the-job. The place of craft or associate professional level skills in the skills hierarchy means that they are likely, in many cases, to require considerable judgement in how they are performed and, therefore, will take some time to acquire and confirm. The operation of key skills in relation to communication and team work also require extended exposure to workplace conditions.

Competency-based training to some extent reduces the need for sole reliance on a time served benchmark as a measure of skills attainment. However, competency-based training does not make duration of the training period irrelevant. Learning a skill requires more than formal knowledge acquisition. It also requires acquiring tacit knowledge from other skilled workers, in a work setting and demonstrating the application of the skill in a variety of different problem solving settings. Competency-based training makes it easier to have variable training periods beyond a minimum duration period.

What is required is a 'substantial' period of structured training? The OECD's classification of education programs in its member countries notes that programs at upper secondary level, which include arrangements related to work-based vocational preparation, range from a minimum of two years to a maximum of five years beyond completion of lower secondary schooling. A survey of apprenticeship arrangements in six European countries identifies a two-year period as the minimum period of vocational preparation required at craft or higher skill levels.¹³

The European apprenticeship system has been defined as:

a formal, structured programme of vocational preparation, sponsored by an employer, that juxtaposes part-time off-the-job instruction with on-the-job training and work experience, leads to a recognised vocational qualification at craft or higher levels, and

takes at least two years to complete.¹⁴

The average length of apprentice training in Germany, according to the regulatory requirements for each apprentice occupation, is 36.9 months. The actual training time taken is shorter as apprentices obtain credit for prior education attainment such as an advanced school certificate (Abitur).¹⁵ In 2000, 18 per cent of German apprentices were able to complete their apprenticeship in a shorter time than that required, reducing the overall average duration to 35 months.¹⁶ Training durations of three years or more is an important feature of the Austrian and Swiss apprenticeship systems as well.¹⁷

Expert opinion also recommends that work-based vocational preparation for intermediate skills involve at least two years of full-time training in the workplace with the possibility of extending this to three years where necessary.¹⁸

These sources suggest that a minimum benchmark for initial work-based vocational preparation should be the successful completion of at least two years in a workplace with the average duration being closer to three years.

ASCO defines Skill Level 2, in terms of formal qualifications, as ‘a level of skill commensurate with an AQF Diploma or Advanced Diploma or at least 3 years relevant experience’. ASCO defines Skill Level 3 as a ‘level of skill commensurate with an AQF Certificate III or IV or at least 3 years relevant experience’. At both skill levels, however, it is also noted that in some instances relevant experience is required in addition to the formal qualification.

Assessment of the three criteria

Entry point to a recognised occupation

As noted above, little is known about the skills pool available at the Associate Professional level. The ABS defines the Associate Professional skill level as ‘a level of skill commensurate with an AQF Diploma or Advanced Diploma or at least 3 years relevant experience’. There are over 1 million people in the workforce in occupations classified as Associate Professional.

Details of the highest level of education attained by people with jobs at this skill level are

¹⁴ Ryan, P, 2000, “The Attributes and Institutional Requirements of Apprenticeship: Evidence from Smaller EU Countries”, *International Journal of Training and Development* Vol 4, 1, p 44. The countries Ryan explicitly draws on are Germany, Austria, Denmark, Ireland, the Netherlands and the UK.

¹⁵ The Federal Institute for Vocational Training (Bundesinstitut für Berufsbildung (BIBB)), Bonn, January 2002 – see Curtain, R, 2003, ‘Australia New Apprenticeships: are they the same as European Apprenticeships?’, Paper for the Dusseldorf Skills Forum, Sydney, 14 February.

¹⁶ Ibid

¹⁷ Hilary Steedman, 2001, ‘Benchmarking Apprenticeship: UK and Continental Europe Compared’. Centre for Economic Performance, London School of Economics, September, p3.

¹⁸ Senker, P; Rainbird, H; Evans, K; Hodkinson, P; Keep, E; Maguire, M; Raffe, D & Unwin, L; 1999, “Working to learn: an holistic approach to young people’s education and training”, in P. Ainley, & H. Rainbird, 1999, *Apprenticeship: towards a New Paradigm of Learning*. Kogan Page, London.

presented in Tables 1 & 2. The data in Table 1 for associate professionals show that the most common qualification is Certificate 111/IV, followed by a bachelor's degree and Diploma/Advanced Diploma. However, nearly half of those working as Associate Professionals (47 per cent) do not have a post school qualification. This is in sharp contrast to the Professional skill level which has only 12 per cent of job holders at this level without a post school qualification. These data suggest that the many Associate Professional occupations do not have clear pathways in terms of post school qualifications as a basis for entry to these jobs.

Table 2 shows that most trades and related workers have a trade qualification (56 per cent). However, it is important to note that as many as 36 per cent of those working in jobs defined as trades and related work do not have a post school qualification. Nor is there much use made of the diploma or advanced diploma as a means of upgrading skills, as only 4 per cent have attained this qualification.

Allen Consulting Group's 1999 report to the Australian Industry Group: *Training to compete: the Training Needs of Industry* noted, among other findings, the need for more middle level skills in the technical and para-professional areas. The TAFE Directors 2001 position statement *Skilling Australians for the future: the role of TAFE in an innovative Australia* highlights, among other things, the importance of re-positioning the TAFE system 'to put more emphasis on middle and high level qualifications'.

Important research questions are: how important are post school qualifications for associate professionals and trades and related workers for entry or promotion? How relevant are these qualifications in terms of main field of education to the current work of associate professionals? Are there other ways to acquire the required skills that do not involve attaining formal qualifications (eg relevant work experience, short courses)? How important are post school qualifications in the work of associate professionals in the innovative industry sectors?

Table 1: Highest level of education attained, Associate Professional Skill level, Australia, May 2002, number and per cent

Post-graduate degree	Graduate diploma/ certificate		Advanced diploma/ Diploma		Certificate III/IV	Certificate I/II	Certificate n.f.d.	Year12 or below	Total
	23.7	31.4	165.6	134.8	196	9.3	0.8	496.3	
2.2	2.9	15.5	12.7	18.4	0.9	0.1	46.6	100	

Source: Derived from ABS Education and Work Australia May 2002, Cat 6227.0, Table 15, p21.

Table 2: Highest level of education attained, trades and related workers skill level, Australia, May 2002, number and per cent

	Graduate		Advanced		Certificate	Certificate	Certificate	Year12	Total
Post-graduate degree	diploma/graduate certificate	Bachelor degree	diploma/Diploma	Certificate III/IV	Certificate I/II	n.f.d.	or below		
1.4	4.1	27	47.2	652.3	8.2	0.9	414.7	1162.6	
0.1	0.4	2.3	4.1	56.1	0.7	0.1	35.7	100	

Source: Derived from ABS Education and Work Australia May 2002, Cat 6227.0, Table 15, p21.

Basis for further skills upgrading

Tracking the further skills acquisition process of those with different skill levels is an important task for assessing the adequacy of foundational skills training. However, this does not appear to be done in Australia. One possible indicator of the capacity of those who undertake vocational education and training to undertake further skills acquisition is their level of prior secondary school achievement. Where vocational education and training is used as a last resort option for early secondary school leavers, the chances of this being a pathway to further skills acquisition is likely to be limited.

Requires a substantial period of training

As discussed above, overseas and Australian definitions of ‘skilled vocational’ indicate that at least two years to three years is the expected duration of training leading to an intermediate skills qualification. If this criterion was applied to New Apprenticeships, what proportion could be defined as satisfying an internationally recognised definition.

New Apprentices and the Intermediate skills pool

Only just over half (52 per cent) of New Apprenticeships at the end of March 2003 could be reasonably defined as contributing to the intermediate skills pool. This refers to the New Apprenticeships in training at AQF level 3 or 4 for an expected duration of 2 years or more. If the criterion of an expected duration of 3 years or more was applied, only 31 per cent of New Apprenticeships fit this.

Duration of traditional apprenticeships

New Apprenticeships at AQF Certificate Level 3, the traditional designation for ‘skilled vocational’, encompass a range of expected durations (see Table 3). Over a third (35 per cent) of New Apprenticeships at this AQF level are for less than 2 years, with 6 per cent having an expected duration of 1 year or less. A quarter of AQF 3 New Apprenticeships have an expected duration of 2 to 3 years and 38 per cent have an expected duration of 3

to 4 years.

Table 3: Expected duration of New Apprentices at AQF Certificate III, in training at 31 March 2003, per cent

AQF Certificate III	Per cent
1 year and less	5.6
1 to 2 years	28.9
2 to 3 years	25.4
3 to 4 years	38.1
4 years and more	1.9
Unknown	0.0
Total	100.0
N= 292,010	
Source: derived from NCVER special tabulations	

Non-traditional New Apprenticeships

Some 123,000 New Apprentices or 31 per cent of the total fit the definition of intermediate skills because they are in an occupation associated with a trade, defined by NCVER using a traditional apprentice proxy.¹⁹ However for the remaining New Apprenticeships, only 30 per cent are at AQF level 3 or 4 and with an expected duration of two years or more. This means that 70 per cent of New Apprenticeships outside of the traditional apprenticed occupations do not provide an entry point to intermediate skills.

Minority of non traditional New Apprenticeships linked to intermediate skills formation

The expected durations of New Apprentices at AQF Level 3 currently in training, other than traditional apprenticeships, are shown in Table 4. Over a majority (59 per cent) of these AQF 3 New Apprenticeships have an expected duration of less than 2 years, with 10 per cent having an expected duration of 1 year or less. These data suggest that only 41 per cent of New Apprenticeships at AQF Level 3 outside of traditional apprenticeships are entry points to intermediate skills.

¹⁹ The number for “traditional apprenticeships” is approximated by trades apprenticeships and traineeships at AQF III qualification or above with more than two years expected duration for full-time contracts and more than eight years expected duration for part-time or school-based contracts. NCVER, 2003, Apprentice and trainee activity 2003-March quarter, p 12.

Table 4: Expected duration of New Apprentices other than those defined by NCVET as traditional apprenticeships at AQF Certificate III, in training at 31 March 2003, per cent

AQF Certificate III	Per cent
1 year and less	9.6
1 to 2 years	49.5
2 to 3 years	33.1
3 to 4 years	5.8
4 years and more	2.0
Unknown	0.0
Total	100.0
N=170,770	
Source: derived from NCVET special tabulations	

Occupational clustering of New Apprenticeships linked to intermediate skills

The occupational distribution of New Apprentices defined as leading to intermediate skills acquisition highly variable (see Table 5). Most New Apprenticeships at this level and expected duration are to be found in the 'trades and related workers' occupational cluster (61 per cent). Some 17 per cent are to be found in the Intermediate clerical, sales and service workers group of occupations. Only 7 per cent are to be found among the intermediate production and transport workers cluster of jobs.

However, the biggest gap lies at the higher skill levels. The occupational groupings in Table 5 represent an ABS-defined skill hierarchy, outlined above. What is most notable about the occupational distribution of New Apprenticeships is that at the second highest skill level, Associate professionals, there are few New Apprentices at intermediate skill level, only 6,700 in total. If all New Apprenticeships are counted for this occupational grouping, they only amount to 6 per cent of the total.

Table 5: Occupational distribution of New Apprenticeships at AQF Level 3 & 4 and above with expected durations of 2 years or more, in training 31 March, 2003, per cent

Occupational group	Per cent
Managers, administrators and professionals	0.9
Associate professionals	3.3
Trades and related workers	61.4
Advanced clerical and service workers	1.8
Intermed. Clerical, sales and service workers	16.6
Intermed. Production and transport workers	7.7
Element. Clerical, sales and service workers	2.5
Labourers and related workers	5.9
Total	100.0
N=204,700	
Source: derived from NCVER special tabulations	

School leavers and traditional and non traditional New Apprenticeships

Table 6 offers an insight into why the New Apprenticeship system is not good at addressing intermediate level skill shortages in occupations not served by traditional apprenticeship arrangements. The table shows that while 88 per cent of traditional apprenticeships are taken up by young people aged up to 24 years, only 30 per cent of the AQF 3 & 4 certificate level New Apprenticeships with 2 or more years expected duration are going to the same age group. The largest concentration of the non-traditional New Apprenticeships with two years or more expected duration is to be found in the 40 years and over age group.

The failure of non-traditional New Apprenticeships at the higher skill level to attract young people is more starkly demonstrated by the age profile of the commencing new apprentices. While 75 per cent of those commencing traditional apprenticeships in 2003 are aged 19 years or less, only 19 per cent of non-traditional apprenticeships commencing in 2003 with expected duration of 2 years or more are in the same age group. These data strongly suggest that school leavers are not attracted to or not encouraged to undertake non-traditional New Apprenticeships that offer a pathway to intermediate skills formation.

The latter may be due to several possible reasons such as New Apprenticeships going to existing employees, Job Network operators using New Apprenticeships as surrogate wage

subsidies for harder-to-employ older job seekers, or even the use of New Apprenticeships to obtain an employment outcome for the older unemployed for contract payment purposes. These possible reasons need to be researched as part of reaching a better understanding of the intermediate skills formation process.

Table 6: The age profile of traditional and non-traditional New Apprenticeships of AQF Level 3 and above and with 2 years or more duration, in training at 31 March, 2003

Type of NA	19 years or less	20 to 24 yrs	25 to 39 yrs	40 years and over	Total	N
Traditional apprenticeships	46.9	40.6	10.4	2.1	100.0	122,990
Other New App at AQF 3 & 4 with 2 yrs +	11.7	18.2	33.7	36.5	100.0	81,710
Source: derived from NCVET special tabulations						

Conclusion

The starting point for this submission has been on improving the mechanisms for intermediate skill formation in Australia as the best response to current and future skill shortages. The focus of the Commonwealth Government in its New Apprenticeship program has been on expansion with little regard to the level of skills supplied by the training arrangements.

The analysis presented in this submission shows that AQF levels considered independently of expected duration of training offer a poor guide to skill level. The fact that some AQF Level 3 New Apprenticeships have an expected duration of one year or less makes it impossible to claim that they are likely to provide skills of the same standing as an AQF Level 3 New Apprenticeship of three or more years expected duration.

It is recommended that specific attention be given to identifying the nature and functions of intermediate skills across all occupations. This will also require differentiating New Apprenticeships in terms of whether they are providing routine or skilled vocational outcomes. Such a differentiation can then be used to brand the skilled vocational pathways more clearly, particularly in occupations where traditional apprenticeship arrangements do not apply.

The identification of skilled vocational pathways need not be restricted to employment-based training arrangements. They should also include classroom-based options with a period of work-based training. A more theoretically based training in the classroom is

likely to be important for associate professional occupations.

Specific target groups need to be identified in relation to particular skills and to tailor the training arrangements to meet their needs. Where school leavers or existing workers are identified as a target group in relation to specific types of skills formation opportunities, training arrangements need to be tailored differently to their needs. One set of training arrangements is unlikely to meet the needs of a diverse range of age and gender groupings, differentiated by skill level and employer requirements.

A more demand-led focus for skill formation arrangements will result in a set of arrangements better able to meet skill shortages. This means identifying which occupations have a genuine need for intermediate level skills and the extent to which this need is acknowledged by employers in a region. Training arrangements in these occupations need to be then developed which address the extent to which employers and trainees are prepared to share the costs with government. The agreed sharing of costs needs to be supported by suitable institutional arrangements. This is to ensure that many rather than a few employers participate in supporting the training arrangements to overcome the 'free rider' problem.

One option, given supporting institutional arrangements, is for employers and unions to direct government funded subsidies to training opportunities which are closely linked to identified skill shortages. Employers may also need to offer additional incentives over and above available government subsidies to reinforce the view that the nominated training and skills are highly valued. If such a case is made and promoted, young people in particular may be more willing to invest in their own skills formation by carrying more of the costs of training, as university students do now through the Higher Education Contribution Scheme.

Good information about the post training employment and wage level outcomes for graduates of training for intermediate skills is an essential element in encouraging more young people into the skilled vocational pathways. This requires TAFE institutes to release information of graduate employment and wage outcomes by the skill level of the course or modules undertaken. It also requires employer associations to gather data on wage levels of the graduates of employment-based training arrangements linked to intermediate skill formation. The more localised this information is, the more impact it will have on prospective applicants or recruits for skilled vocational training.

Information about levels of non-completion of courses and work-based training also need to be released at a disaggregated level to ensure that a more demand focus is built into the allocation of government subsidies through the New Apprenticeship program. Where high levels of non-completion are identified, feedback loops are needed to enable employers and prospective trainees to respond with voice or exit.