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A Guide to
Development of
Competency
Standards for
Professions

DEPARTMENT OF EMPLOYMENT, EDUCATION AND TRAINING
A GUIDE TO DEVELOPMENT
of
COMPETENCY STANDARDS
for
PROFESSIONS

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NATIONAL OFFICE OF OVERSEAS SKILLS RECOGNITION
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1. PREFACE

1.1 Introduction

Work in developing national Competency Standards is increasing in Australia. Standards are being developed on an occupational basis (including work currently being started or continuing across some 20 professions); on an industry basis (through Competency Standards Bodies) and at the enterprise level eg. CSIRO Brisbane City Council, BHP and ICI.

This Guide relates primarily to the development of occupational standards, that is national Competency Standards for individual professions. It is intended to be a more "hands-on" document than the Research Series Papers No. 1 (Establishing Competency-based Standards for the Professions) and No. 2 (Competency-Based Assessment in the Professions), which NOOSR commissioned as initial discussion papers in December 1990, although those remain relevant in their coverage of the basis of development of Competency Standards and thus complement this Guide.

The following pages include more comprehensive examples of Units and Elements of Competency, Performance Criteria and Range Indicators from Standards developed in Australia. The Guide gives practical feedback on experience with the development and application of Competency Standards in the Australian context. Discussion of further issues emanating from work on the development of Standards by professions during 1990 and 1991 is included. These features together will clarify aspects of the approaches outlined in the two Research Papers and the contexts in which the professions are operating.

The preparation of this Guide and the Competency Workshop of 19th February 1992 are part of NOOSR's ongoing support for the professions developing national Competency Standards. NOOSR's main assistance continues to be directed to funding the professions' Competency development projects.
Funding assistance provided through NOOSR is usually through a contract with one of the key national bodies representative of the profession; usually a professional body, which has undertaken to form a steering group with all other parties affected by the development of Competency Standards.

Priority for funding assistance is directed to the professions that are currently regulated in some or all States, but other self-regulating professions may also be assisted. NOOSR's support for regulated professions has been increased following the requirements of the Special Premiers' Conference for National Competency Standards for all regulated occupations to be in place by the end of 1992. The major thrust of NOOSR's activity is to support development of Competency Standards for the Entry Level of professions.

1.2 How to use the Guide

The Chapters of the Guide are intended to be read in sequence initially. Once a feel for the overall thrust of the document has been gained, the separate Chapters should serve as useful "stand-alone" guides to their particular subject.

The earlier Chapters of the Guide set the scene (Chapter 1), clarify the context in which Standards are being developed (Chapter 2), outline the benefits of Competency Standards for professions (Chapter 3) and explore some key points concerning the conceptual basis of Competency Standards (Chapter 4). Chapter 5 deals with the format of Australian Competency Standards, to which the Standards for all occupations should conform.

Practical approaches to development of Standards in Australia are discussed in Chapter 6 and some key issues arising from that work are addressed in Chapter 7. The main text of the Guide concludes with a practical summary of the Steps involved in development of Competency Standards (Chapter 8).

Throughout the Guide particular examples have been chosen from a variety of professions to illustrate general points. The thrust of the examples used will almost
certainly be relevant to most professions, even though at first sight certain professions may appear to have little in common.

The Australian experience has shown that there is a great deal to be learnt from the work of other professions. There are many shared problems. The value of the Guide would be diminished considerably if readers were to concentrate only on material drawn from their own profession or from traditionally cognate professions.

1.3 Note on Terminology
As in any new field of endeavour, the literature concerning Competency–Based Occupational Standards is still developing. New jargon has been introduced and some terms have been used in different ways by different authors. The use of jargon in this Guide has been kept to the minimum necessary to conform to the Australian Standards Framework and Format and maintain commonality throughout the professions. A brief introductory explanation of some key terms is given below.

Competency–Based Occupational Standards are concerned with competent performance in the workplace. In that context, the term "Competency" has been defined (National Competency Standards Policy & Guidelines; NTB, 1991) as follows:–

**COMPETENCY** – "the ability to perform the activities within an occupation or function to the standard expected in employment".

In essence, Competency amounts to a demonstration, through performance in the workplace, of an individual's underlying personal competence. Competency–Based Standards are concerned with identification of the personal characteristics that contribute to Competency and specification of how those characteristics are applied and reflected in competent performance in the workplace.
The term "competency" has been used differently in other contexts. It has often been used to describe the intrinsic characteristics of individuals, in the same way that "competence" is used here. It has also been used to describe a segment of a profession's work. Those usages are avoided in this Guide.

When considering the Competency of professionals (or any other occupation), it is useful to begin by thinking about the Competency of the profession as a whole, i.e. its overall ability in the workplace. To develop Competency–Based Occupational Standards, it is necessary to divide that overall ability of the profession into smaller and more manageable segments, which can be observed readily in the workplace and assessed.

In the Australian Standards Framework & Format, major segments of a profession's Competency are called Units of Competency. As described later, these Units are typically subdivided further into smaller segments called Elements of Competency.

In other literature, such subdivisions have been called variously Competences, Competencies, Fields of Competence, Statements of Competence, etc.. This Guide adopts the Australian convention of Units and Elements of Competency to describe recognised segments of professional Competency in Competency–Based Occupations Standards.

In some of the more general discussions throughout the Guide, the constituent parts of overall professional performance may be referred to generically as "segments" of professional activity. This simplification makes for easier reading.

The Guide attempts to reduce the amount of jargon that needs to be understood to develop Competency–Based Occupational Standards, as will be evident from the short Glossary. The professions will need to become familiar with some new terms, but only a few. The meanings of key terms are explained in context
throughout the document and summarised in the Glossary. Adoption of the terminology used in this Guide will facilitate communications and avoid confusion in the future.

In the interests of brevity, Competency-Based Occupational Standards are called either Competency Standards or Standards throughout the Guide.

1.4 Note on Illustrative Examples
Development of Competency Standards for the professions is still in relatively early stages. Most of the illustrative material contained in this Guide is drawn from draft Standards. Some of the examples used here may well change during further review and development by the professions concerned. The contributions of professions to this Guide by way of examples and comments are gratefully acknowledged.

Particular excerpts from draft Standards have been selected because of their availability and suitability to illustrate general points of relevance to other professions. The range of available examples of Australian draft Standards is still somewhat limited. Inferences should not be drawn from whether or not a particular profession is represented in the examples used in the Guide.

The majority of illustrations are derived from professions where the development of Competency Standards is already well advanced and suitable examples are at hand. Fictitious Standards are used occasionally to illustrate some points where appropriate examples could not be found among actual drafts of Australian Standards. Several complex issues surround the development of Competency Standards for professions. Detailed discussion of complex issues is deferred until Chapter 7, which amplifies a number of topics dealt with only in passing in the earlier Chapters of the Guide.
1.5 Existing Standards

This Guide is concerned with development of Competency Standards. Professions do of course have existing standards. In general those Standards are not competency-based. Development of Competency Standards and assessment of competence against those Standards will represent a significant innovation for most professions. The attendant benefits are discussed in Chapter 3.

1.6 Feedback from Professions and other Users of the Guide

It is to be hoped that this Guide to Development of Competency Standards for Professions will facilitate the challenging and rewarding process of development of Competency Standards for professions. NOOSR will welcome feedback on the Guide.
2. NOOSR, THE NTB AND THE AUSTRALIAN STANDARDS FRAMEWORK & FORMAT

2.1 Introduction
The aims of this Chapter are to clarify the roles of the major parties concerned with overseeing the development of Competency Standards in Australia and to highlight some of the features of the Australian Standards Framework & Format. There has been a major initiative to develop a uniform Australian Standards Framework & Format, within which Competency Standards for professions will be developed.

The National Training Board (NTB) has been primarily responsible for the development of the Australian Framework and Format. This Chapter draws heavily on the publications of the NTB and shows how the work of the NTB impacts on the development of Competency Standards for the professions through the National Office of Overseas Skills Recognition (NOOSR), which is overseeing the development of Standards for the professions through the Competency Development Section.

2.2 The National Office of Overseas Skills Recognition (NOOSR) and the National Training Board (NTB)
NOOSR has been the driving force behind the development of national Competency Standards for the professions in Australia. The NTB has played a similar, though different, role in the development of national Competency Standards for all other occupations. Hence the relationship between NOOSR and the NTB is very important.

NOOSR was created in 1989 as part of the Commonwealth Government's multicultural agenda, which incorporated further progress in efficiency and equity in the recognition of overseas qualifications within Australia. One of NOOSR's major roles is to overcome some of the present barriers to recognition of overseas
qualifications, thus allowing all people (i.e. both Australian residents and recent migrants) to enter the labour market at appropriate levels.

For the professions, the traditional processes of evaluation of overseas qualifications (sometimes as a prior condition to examination) and examinations based on skills and knowledge (often related to a final-year university exam) have proved unsatisfactory as a means to recognise competence. These mechanisms do not provide candidates with an adequate opportunity to demonstrate their real occupational competence. In addition, the recognition processes in Australia have often been fragmented, with the registration and licensing boards of States and Territories applying different criteria for entry to practice. The development of national Competency Standards has become pivotal to NOOSR's initiatives to reform current practice in overseas skills recognition.

Besides assisting those with overseas qualifications, the move to Competency Standards also supports the Government's strategies for overall reform of the Australian labour market. An important outcome will be a resolution of the differences in standards that currently restrict national mobility in the workforce. Competency Standards will also facilitate articulated training, industry progression and award restructuring.

**NOOSR's responsibility** in this process is to work cooperatively with the States and Territories to implement programs designed to:–

- develop and promote national Competency–Based Occupational Standards based on skills, knowledge and attitudes necessary to do a job;
- promote methods of skills-assessment, emphasising competence and experience; and
- encourage cooperation on skills recognition between the Commonwealth, the States, professional associations and registering bodies.
The following professions are currently working, or are in the process of starting work, on the development of national Competency Standards and related assessment methodologies with assistance from NOOSR:-

accountancy, agricultural sciences, architecture, chiropractic, dentistry, dietetics, engineering, nursing, occupational therapy, optometry, osteopathy, pharmacy, physiotherapy, podiatry, psychology, radiography/nuclear medicine, social/welfare work, speech therapy, veterinary science.

The NTB commenced operations in April, 1990. It is a public company, limited by guarantee, whose owner members are the Commonwealth, State and Territory Ministers responsible for vocational education and training. The NTB operates under a Memorandum of Understanding whereby the Ministers have all agreed to provide and accredit vocational education and training nationwide within a framework of endorsed national Competency Standards. The NTB’s role is to assist industry to develop and then endorse national Competency Standards for occupations and classifications in industry, or for enterprise awards or agreements.

The NTB’s company structure gives it flexibility, independence and an innovative means of enabling tripartite cooperation and consultation between Governments, employers and unions. The NTB itself is a small body because the industrial parties themselves have the primary responsibility for developing the Competency Standards. The Australian approach, unlike that in some other countries, is based on the policy that if industry is to own the Competency Standards, then it must own the process of developing them.

Interactions between NOOSR and the NTB are important to the whole process of development of standards. NOOSR and the NTB have established a regular consultative mechanism to ensure that both organisations are aware of each other's work priorities and that, as the NTB develops its requirements, these are reflected in NOOSR's requirements for the professions.
For example, the requirements of the NTB concerning the structure of Competency Standard Bodies (CSB's) have influenced NOOSR's requirements for the membership of the steering committees that guide and oversee the development of national Competency Standards for the professions. NOOSR requires that the Standards developed by steering committees on behalf of professions relate to the Standards Format of the NTB and are capable of being articulated downward to Levels 6 and below within the Australian Standards Framework.

The NTB currently has explicit coverage of Levels 1 to 6 of the Australian Standards Framework, which generally corresponds to vocational education and training, and not of the professions, as in the proposed Levels 7 and 8. There is as yet no formal approval or endorsement mechanism for standards developed through NOOSR. It is expected that the Standards being developed by the professions will, at a later date, be available to CSB's developing the professional levels of industry standards, where those levels are included in industrial awards.

The descriptions of those professional levels are still to be determined. They are to be the subject of consultations, which the NTB is about to undertake in the first half of this year (1992). These consultations will include the application of the NTB's Format to professional competencies and the possibility of whether any changes to it would be appropriate.

2.3 The Australian Standards Framework

The eight Levels of the Australian Standards Framework are illustrated in relation to current qualifications in Figure 2.1 (over page). Note that the Levels of the Framework are not based on current qualifications. The Figure is only a guide to approximate parities. Entry Level of the professions would correspond to, or be incorporated in, the proposed Level 7 of the Standards Framework.
Figure 2.1 Approximation of Some Current Qualifications to the proposed Levels of the Australian Standards Framework. Entry–Level of the professions relates to the proposed Level 7. (Adapted from NTB Network No. 3, 1991; pp 6–7).
The Australian Standards Framework is the mechanism which provides a basis for justice for all in terms of the recognition of achieved competencies. The Framework, as set out by the NTB (NTB Network No. 3, 1991; pp 6-7; excerpts shown in italics below):—

- enables comparisons between standards in various industries and sectors, and
- provides the basis for credit transfer and recognition,
- by providing an impartial benchmark for the alignment of credentials and other forms of recognition.

The Australian Standards Framework is therefore a key component of the new national competency-based training and accreditation systems, which are designed to deliver a skilled workforce for Australian industry.

The Framework is a set of eight competency levels which broadly describes the full range of jobs that people do, above entry level into the workforce. It starts at Level 1, the base level for a competent worker. It ends at Level 8, which encompasses senior professionals or managers (see Figure 2.1).

Each (occupational) classification will have an overall Competency Standard which consists of a number of Units of Competency.

These will include the national industry core and any other occupational core competencies which may be relevant. The total package will be aligned against the Framework following consultation between the industry and the NTB. The purpose of aligning a competency standard against the Framework is to promote the identification and portability of the standard and provide a pointer for the transferability of its constituent units. This alignment is not intended to provide a basis for determining fees, wages or salaries for each classification within an award, or on the basis of comparisons, between awards.
Many factors influence the industrial parties and tribunals in determining remuneration. The fact that broad competencies are comparable through the Framework in itself says nothing about the circumstances prevailing in a particular industry which may significantly determine appropriate remuneration and working conditions.

National standards will be used and accepted as the basis for recognition of competencies within an industry, across industries where commonality is present, in all States and Territories for formal vocational education and training purposes and, increasingly, for licensing and regulatory purposes.

.... a single Format for standards will assist industries and clients in the identification of standards that are common across industries and occupations, both during the development process and in subsequent reviews. Commonality, which will provide the basis for recognition and credit transfer arrangements, will be flagged in the National Competency Standards Register and made available to industries and to State and Territory authorities.

(In summary).... the Australian Standards Framework will provide the essential impartial benchmark against which achievements and recognition may be judged and certified.

2.4 The Entry Level of the Professions

As indicated in Figure 2.1, the possibility of at least two levels of professional competence is catered for by the two Levels (7 & 8) proposed to include the professions in the Australian Standards Framework. The least experienced level of the professions i.e. "Entry Level" corresponds to Level 7. It is not yet clear whether "sub–Levels" are envisaged within the proposed Levels 7 & 8. Level 7 might, for instance, include two sub–Levels to distinguish the minimum registrable competence of a recent graduate (in the workplace) from the abilities of a more experienced practitioner. These matters are yet to be resolved.
A concept of "Entry Level" is necessary for development of Competency Standards for the Entry Level of the professions, the primary target of NOOSR's support initiative. It should be noted that the term "Entry Level" refers to the profession, not to the behaviour of individuals. New entrants would of course normally enter the profession at the least experienced Level of the profession (e.g. as new graduates), but some new entrants (e.g. experienced overseas graduates) may well enter a profession at some higher Level.

Because professionals are accustomed to thinking about entry to the profession as a new graduate, there is a tendency to think of the Entry Level of the profession in terms of the abilities of individual new graduates. A different outlook is required in the context of development of Competency Standards. Competency Standards are not concerned with defining the abilities of new graduates. They are concerned with defining competent performance in the workplace. It is of course to be hoped that the abilities of new graduates would be closely aligned with the level of competence required at the Entry-Level of the profession.

Each profession will need to identify what constitutes the Entry Level of the profession and the level of competence required in the workplace at that Level. This is not necessarily an easy task.

2.5 Conclusion

This Chapter has highlighted the importance of the interactions between NOOSR and the NTB. It also sets out how the Australian Standards Framework & Format will impact on the development of Competency Standards through NOOSR and shows how the proposed Levels 7 & 8 of the Australian Standards Framework could relate to current professional qualifications. The need to define the Entry Level of the profession is also emphasised. NOOSR's support is aimed mainly at development of Competency Standards for the Entry Level of the professions. The next Chapter outlines some of the benefits to the professions of the Competency Standards to be developed within the Australian Standards Framework & Format.
3. BENEFITS OF COMPETENCY STANDARDS TO PROFESSIONS & THE COMMUNITY

3.1 Introduction

There are many general benefits to be had from a system of nationally-agreed Competency Standards. A range of specific benefits for professions are also highlighted here. These include clarification of professional complexity, educational benefits and recognition of overseas qualifications. Some of the common misconceptions surrounding Competency Standards for professions are also discussed, including ownership of the Standards and the question of minimum standards.

3.2 General Benefits

The benefits to any occupation of having a set of Competencies that cover all entry requirements, together with specified performance Standards and an appropriate assessment methodology are several. They include:–

- consistent recognition across States and Territories;
- accreditation by all States and Territories for applicants who meet the Standards (whether trained in Australia or overseas);
- an open and equitable assessment of those with overseas education and work experience against agreed, public Standards of performance;
- articulated training and progression within industries;
- recognised articulations with related occupations.

An additional general benefit of National Competency Standards for professions is that they provide a description of professional practice, which reflects the unique roles and contexts within which the profession operates. This benefits the public image of a profession and its relations with clients.
For professional practitioners themselves, the major general benefits relate to the links between national skills standards and recognition of competence for entry to a profession and advancement within it. National Competency Standards will also improve portability of practice and employment across Australian States and Territories as part of the mutual-recognition model agreed to by the Special Premiers' Conference.

3.3 Clarification of Professional Complexity

It will be evident from the foregoing that Competency Standards focus on a capacity to perform in actual workplace situations. While formal qualifications are obviously necessary, an ongoing problem for professions has been how to ensure that formal qualifications translate into effective workplace practice. This concern has been evident for example in recurring attempts to improve the impact of the professional year or internship component of many professions.

Nevertheless, some would still argue that the nature of professional work is too complicated to be captured adequately in a set of Competency Standards. It should be emphasised that Competency Standards make no claim to exhaust all facets of a profession, just as traditional courses for professionals do not claim to be totally comprehensive. What a good set of Competency Standards does is to provide a clear statement of what is considered to be important in competent performance in that profession. This is has been a long–felt need of registering authorities and the like.

It is important for people who are concerned with registering (and educating) professionals to be able to state clearly what distinguishes professional performance from non–professional performance. This is essentially what Competency Standards do. To point out that professional work is complex simply requires that valid Standards will need to take account of this complexity. It is already evident in the professional Competency Standards developed so far in Australia that it is possible to capture the complexity of professional work. This will
offer significant benefits to the registering authorities. Examples are given in later Chapters of the Guide.

3.4 Ownership of Standards
As already emphasised, the policy behind the development of Competency Standards in Australia is that **professions** should develop and **own their Standards**. This provides an ideal opportunity for a profession to assess its overall capacities, its position in the community and its relations with other professions. It also presents a unique opportunity for professions in Australia to raise their community image by increasing their level of professionalism.

3.5 Communication in the Profession and with the Community
Many of the professions that have embarked on development of Standards are now enjoying enhanced communication about professional competence on a national level. The steering groups formed within professions to guide development of Competency Standards (with representation across the range of professional bodies, educators, employers, unions & registration Boards) have proved useful in terms of extending general rapport within and across professional groups.

Competency Standards are also an explicit **public** statement of what the profession does, something that has not been available previously in most cases. This represents a significant gain to a profession and to the community it serves. Professions do of course have standards already, but those standards are not generally competency-based. Nor are they effective instruments to communicate what is expected of a competent professional in the workplace to the community and other professions.

3.6 Educational Benefits
Competency Standards also offer educational and assessment benefits. The Standards themselves are a powerful guide to providers of professional education. Nevertheless, it needs to be emphasised that **Competency Standards are not**
curriculum documents. Entry-level Competency Standards specify what new graduates should be able to do in the workplace, but say nothing about how that state is to be achieved. Hence, for providers of professional education there is as much flexibility as ever to decide what material to teach, how to teach it and how to assess it.

However, assuming that there is room for improvement in most existing courses, a good set of Competency Standards will provide invaluable guidance for occupationally-related changes to the content of courses. They may also inspire new methods of delivery and/or assessment. As always, there is more than one way to teach effectively. This latter point gives the lie to another misconception about Competency Standards, the myth of central regulation.

This myth suggests that everything that takes place in a course is dictated centrally by governments. In fact, given that professions will develop and own their Competency Standards, this will place the professions in a better position to influence the content and outcome of courses and set the direction of the profession than at present.

Because the Competency Standards are a powerful guide to providers of professional education, without being a curriculum document, they provide common ground for discussion between providers, registering authorities and the profession that does not exist now. The lack of such common ground in the past has seen some providers fragment into a series of specialist departments that compete with one another for funds, staff, etc. and thereby lose sight of the totality of professional practice. Competency Standards provide an external public focus for debate. They will enable the relative roles of the providers and profession to become clearer in a mutually cooperative environment.

In addition to maintaining existing flexibility in educational approaches, the advent of national Standards is likely to enhance educational flexibility. There are many
ways of meeting Standards. Increased opportunities for innovative approaches to education are probable.

3.7 Minimum Standards?
Another myth about Entry-Level Competency Standards is that because they prescribe minimum standards, they may therefore discourage excellence by reducing everything to the lowest common denominator. A variant on this is that they promote deskilling. These charges are no more logical than making the same claims about traditional examinations on the grounds that there is a minimum mark for gaining a pass. This myth is based on a complete misunderstanding of the nature of the Standards. For the charges to have any substance, the Standards would have to relate to tasks that admit of no degrees of performance, i.e. you can either do it or not.

In professional work, (and in most other kinds of work), such tasks are rare. Standards for the professions will typically relate to tasks that admit of many degrees of performance, as does the task of taking a traditional examination. In both cases, the existence of a minimum satisfactory level of performance is consistent with a full range of performances from excellent through to fail. (For further discussion of the kinds of standards that are appropriate for professional work see NOOSR Research Papers No. 1 [Section 4] and No. 2 [Part 2]).

In addition, as already discussed, Entry-Level Competency Standards are not a curriculum document. Of course the expectation is that most graduates of professional courses will greatly exceed the performance levels specified by the Entry-Level Competency Standards, just as most entrants to the professional courses greatly exceed the entry requirements and most do better than the minimum pass level during their courses.
3.8 Continuing Professional Education

Competency Standards offer considerable guidance for the longer term development of the profession beyond entry level. Continuing professional education (CPE) has been criticised frequently for lack of direction and/or rationale. The clear specification of what a competent professional needs to be able to do will provide a much sharper focus for CPE. Similar considerations apply to refresher courses for people returning to the profession after an absence, or to people whose training is out of date. The potential impact of Competency Standards on CPE is discussed further in Hager & Gonczi (1991).

3.9 Recognition of Overseas Qualifications

The value of Competency Standards for efficient and equitable recognition of overseas qualifications has already been mentioned. In essence they offer an effective means to recognise prior learning and experience. This is a more equitable means to recognise the competence of overseas-trained professionals than a comparison of qualifications, which can be an expensive and uncertain process.

3.10 Conclusion

This Chapter highlights some of the benefits of Competency Standards for professions and dispels some common misconceptions concerning Competency Standards. The next Chapter examines the conceptual basis that underpins Competency Standards and is reflected in the format adopted for Standards in Australia. The Australian format is described in detail in Chapter 5.
4. WAYS OF THINKING ABOUT COMPETENCE

4.1 Introduction
The major concern of Competency Standards is to recognise competence, professional competence in the present context. How people think about competence affects the ways in which they might go about developing Standards. This Chapter addresses some key issues surrounding the concept of competence, all of which have a direct bearing on the development of Competency Standards.

4.2 The Concept of Competence
An understanding of the concept of competence is central to the development of Competency Standards. It is important for the professions to share an understanding of the foundations of Competency Standards in a concept of competence. The key point in relation to competence, which may be overlooked, is that competence is an intangible construct; i.e. it cannot be observed directly. The construct of competence attempts to capture the myriad of personal characteristics or attributes that underlie and enable competent performance in an occupation. Some of the personal attributes that underlie professional competence may be readily recognisable (e.g. a particular knowledge base, certain skills, attitudes etc.) while others may be ill-defined, poorly understood or even unrecognised.

Because competence cannot be observed directly, it is necessary to obtain some form of indirect evidence from which underlying competence might be inferred. The nature of the evidence to be obtained, and the validity of the inferences drawn from it, are the major issues surrounding recognition of competence.

4.3 Attribute-Based Inference of Competence
One approach to inference of competence involves definition of a series of personal attributes (e.g. a set of skills, knowledge & attitudes) that are believed to underlie competence and testing whether those attributes are present at an
appropriate level in the individuals whose competence is to be recognised. The presence of the chosen attributes provides the evidence from which competence is inferred. This "attribute-based" approach is prominent in professional education and training, specially in relation to knowledge.

An inherent assumption in this approach is that identifiable personal attributes will translate into competent performance in the professional workplace. The most commonly tested attribute is knowledge, often by written examination. Many professionals have recognised that tests of knowledge in isolation do not always translate into competent performance in the workplace.

It is also well recognised that many other attributes are important in professional practice. Examples include analytical capacity, exercise of professional judgement, decision making, delegation, problem solving, empathy, caring, establishment of relationships with clients, interactions with colleagues etc..

A difficulty with many of these attributes is that they can be difficult to assess. As a result they are often ignored in assessment of competence in favour of ("objective") tests of knowledge and/or some readily identified skills. This accounts in part for why some people who do well in written examinations are not necessarily good performers in the workplace, where other untested attributes assume significance in application of their knowledge.

4.4 Performance-Based Inference

An alternative approach to inference of competence is to observe the performance of individuals in the actual workplace, from which underlying competence can be inferred. This is a "performance-based" approach to inference of competence, as distinct from the "attribute-based" approach described above. It is concerned with demonstration of competence by doing something competently. It does not involve assumptions about the attributes that contribute to competent performance, only that competent performance is demonstrated. In the performance-based approach, individuals are competent at something or to do something.
Performance-based models are concerned with **results** (or "outcomes") in the workplace, rather than potential competence as indicated by tests of attributes. Even when the underlying competence being tested is not itself readily observable, e.g. the ability to solve problems, performance and results in the workplace are still observable and the underlying competence they reflect can be inferred readily. Performance-based models of competence should specify what people have to be able to do, the **level of performance required** and the **circumstances in which that level of performance is to be demonstrated**.

A performance-based approach is intuitively attractive to many experienced professionals, who feel confident they can identify competence more easily by observing performance than predicting it from tests of attributes. The key issue is whether the appropriate aspects of performance are assessed.

It may e.g. be relatively easy to infer competence from assessment of performance in a particular setting, but rather more difficult to assess whether that individual would perform equally well in other circumstances; i.e. is there evidence of the **adaptability and flexibility** (i.e. transferability) that is required of professionals (and others) in the workplace? There may also be a tendency to select aspects of performance that are easy to assess e.g. routine tasks, rather than other more complex aspects of performance that truly reflect higher levels of professional competence e.g. problem solving, exercise of professional judgement etc.. If competence is to be recognised from performance, it is **essential that appropriate aspects of performance are observed and assessed**.

### 4.5 Combined Inference

In essence, the performance-based and attribute-based approaches represent the opposite sides of the same coin. Both are attempting to gain appropriate evidence from which competence might validly be inferred. As indicated above, neither approach is perfect. Both have strengths and weaknesses, specially in relation to the contexts in which they are applied.
Attribute-based models raise serious questions about the nature of the attributes that will be tested and whether those attributes, even if present in sufficient quality, will indeed translate into competent performance in the actual workplace. That is to say nothing of the difficulty of assessing some important attributes. On the other hand, simplistic performance-based approaches may tend to concentrate on routine activities and overlook important aspects of professional performance such as judgement, flexibility and transfer of skills to new environments.

Because of the difficulties inherent in both approaches if used alone, the possibility of employing a combination of both approaches to think about competence in particular contexts is to be encouraged. The advantages of this "integrated" approach, together with the inherent strengths and weaknesses of attribute-based and performance-based approaches, are discussed in detail in NOOSR Research Paper No.1 (1991; Part 4). That paper is an important adjunct to this Chapter of the Guide.

The principal benefit of the combined approach is that it focuses attention on the personal attributes of competent professionals as well as how those attributes are likely to be applied and expressed in competent performance in the actual workplace. Practical examples of how this has been done are given in Chapter 6.

4.6 Competence and Competency Standards

An important point in the present context is that the format of Australian Competency Standards emphasises performance-orientated recognition of competence in the workplace. The Standards are concerned with inference of competence from performance in the usual environment of the professional workplace, with all of its attendant contextual features, pressures etc. They are not directly concerned with specification of the attributes that underlie competent performance; the Standards are concerned instead with how those attributes would be expressed as competent performance in the actual workplace. Nor are Competency Standards concerned with how a capacity for competent performance was obtained; they are not a curriculum document.
That is not to say that the Australian approach to Competency Standards disregards attributes. Quite to the contrary, as expressed in the NOOSR Research Papers and elsewhere, it encourages a concern for the attributes that underlie competent performance. However, the Standards seek to express those attributes in terms of performance in the actual workplace, rather than in isolation from it.

In developing performance-orientated Competency Standards, the professions should be concerned with identification of those aspects of professional performance in the professional workplace from which competence might confidently be inferred. This approach will be unfamiliar to many professionals. Attribute-based approaches, specially written examinations, predominate in traditional professional education and training and often exert considerable continuing influence on thinking about competence in the workplace.

The differences between attribute-based and performance-based approaches to inference of competence need to be distinguished and their strengths and weaknesses recognised in development of Standards. A fresh outlook may be required for those whose concept of competence is primarily attribute-orientated. While a purely performance-based approach may be intuitively attractive to many experienced practitioners, the shortcomings of that approach should also be recognised, specially the historical tendency to focus on routine tasks.

Performance-orientated Standards should not be concerned only with routine aspects of performance. They should address all of the complexities of professional work in the actual workplace(s) of the profession. If this is done, the potential weaknesses of performance-based approaches will be overcome.

As indicated above, neither attributes nor performance are the same as competence. They are the means by which competence can be inferred. In developing performance-orientated Standards, professions should aim to identify the aspects of performance in the workplace that provide the best means to infer professional competence. An integrated approach to development of Standards
that includes a comprehensive consideration of the important attributes that underlie competent performance in the actual workplace, as well as the performance itself, will be the most fruitful.

For instance, it is widely recognised that an ability to perform a series of routine tasks in isolation does not represent professional competence adequately, no matter how well the tasks are performed or how important they are to the work of the profession. The ability to judge whether such tasks should or should not be undertaken is an equally important part of professional competence in the workplace that should be recognised in Standards.

On the other hand, competent performance in certain routine professional activities will be absolutely essential to delivery of an appropriate level of performance to the community. A balance between these aspects of performance must be struck according to the needs of the professions, the community and the registering authorities.

4.7 The Importance of Context

As indicated above, the context in which professional performance is required should be specified in performance-based models. The importance of context can be illustrated by considering the following example of manipulative performance: fixing, with screws, a metal plate to a firm surface. This is undertaken regularly by both carpenters and orthopaedic surgeons, in different contexts.

The underlying ability expressed in attaching the plate is essentially a psychomotor skill. The ability to drill holes, place screws etc. could be tested readily in isolation from the workplace. Competent performance in either occupation is unlikely to be guaranteed from such tests. Many individuals who are untrained in either occupation have the ability to drill holes etc., even if not particularly skilfully. Possession of that ability would of course not necessarily translate to competence in either of the occupational contexts under discussion. Nor would competent
performance in one of the occupations transfer readily to the other workplace, without an awareness of a host of particular contextual factors.

It would of course be possible to identify a series of attributes for each occupation, which could be tested comprehensively away from the workplace. Even if this was done, the issue of context still cannot be avoided in e.g. an appreciation of the relevant differences between bone and wood. On the other hand, performance in the workplace can be observed directly and competence inferred from it. This is the approach of Competency Standards. The key point is to identify the important aspects of professional performance that give the best indication of competence, preferably in a range of circumstances that reflect the nature, variability and pressures of the actual workplace. Professionals should be competent to work in a range of contexts.

A myriad of different contextual factors play a part in competent performance in the two occupations referred to above. The important point is that Competency Standards should recognise such contextual factors and the responses required of a professional to be competent in those contexts. As illustrated above, possession of attributes in isolation from the context in which they are to be applied may be virtually meaningless in terms of actual occupational competence.

While there are obvious contextual differences between professions, there are significant differences between the contexts in which professionals work within a professions as well (e.g. Pharmacists work in hospitals, industry and the retail sector). Some aspects of professional competence will be shared by all members of a profession (so-called "core competence") while other aspects of competence may be unique to a particular industry ("industry competence") or even an occupation within an industry ("occupational competence"). If these differences within a profession are of major significance, they should be recognised in Competency Standards. A variety of practical strategies for doing so are discussed in Chapters 5 – 7.
4.8 Conclusion

The conceptual basis of Competency Standards has been established in this Chapter. Competent performance in the workplace reflects underlying personal attributes. The expression of those attributes is affected by contextual factors in the workplace. In thinking about professional competence, both performance and underlying enabling attributes should be considered. The contextual factors that affect translation of attributes into competent performance in the workplace should also be identified. How that "integrated" approach to thinking about competence translates into a practical format for Competency Standards is the Subject of the next Chapter.
5. THE FORMAT OF COMPETENCY STANDARDS

5.1 Introduction

The aim of this Chapter is to clarify the nature and general format of Australian Competency Standards. Examples of Standards that are being developed in line with that format are included. The processes by which these Standards have been developed are considered in detail in Chapter 6.

The first major concern of this Chapter is to clarify the meaning of the term "Competency" in the context of "Competency-Based" Standards. As will be seen later, this term attempts to capture the process of translation of personal competence (as discussed in Chapter 4) into competent performance in the professional workplace.

5.2 Competency

Competent performance in the workplace is described in terms of Competency in the system of Standards adopted in Australia by the NTB. Competency is defined (National Competency Standards, Policy & Guidelines; NTB, 1991) as:-

COMPETENCY – "the ability to perform the activities within an occupation or function to the standard expected in employment".

The term "Competency" is often mistakenly thought of as applying only to the performance of individuals. It is equally applicable to a profession as a whole. Indeed, consideration of the overall Competency of the profession is no less important to development of Standards than the Competency of individuals.
The definition of Competency clearly embodies two major components:--

i. what is done in the workplace; and

ii. the standard of performance required in employment (which includes those professionals who are self-employed).

The initial aim in developing Competency-Based Occupational Standards is to describe the Competency of the profession. In essence, the profession should answer the following two key questions (as employed in Veterinary Science):--

i. "What is usually done in the workplace in that particular profession?"; and

ii. "What standard of performance is normally required?".

The answers to these questions are then written in a particular format known as Competency-Based Occupational Standards. The use of "Occupational" reminds us that the Standards are concerned with the workplace rather than e.g. educational curricula. "Competency-Based" reflects the concern of the Standards for translation of competence into performance in the workplace, as distinct from some other sorts of Occupational Standards (e.g. award-based or qualification-based standards).

In the interests of brevity, Competency-Based Occupational Standards are called Competency Standards or simply Standards in this Guide.

The nature of Competency Standards is described below. For the moment, the two key questions cited above provide a practical starting point to develop Competency Standards. The crucial point is that they be answered initially in terms of the profession as a whole, not just in terms of individual performance.
5.3 Nature & Format of Competency Standards

Competency Standards are intended to express the Competency of the profession and its members in a structured way, which incorporates the two components of Competency referred to above; what is done in the workplace and the standard of performance required.

As indicated in Chapter 2, the main (but not exclusive) thrust of the current NOOSR initiative is concerned with development of Standards for the Entry Level of the professions.

5.3.1 Units & Elements of Competency

Development of Competency Standards begins with an overview of the Competency of the overall profession, with an emphasis on the Competency of Levels of particular interest, the Entry Level in this case. The Competency of individuals can then be addressed within this overall framework for the profession.

To describe the Competency of a profession in a way that will be useful to recognise and assess the competence of individuals (e.g. for registration or career progression) by way of Competency Standards, it is necessary to subdivide the overall Competency of the profession into manageable and meaningful components that will be observable in the performance of individuals in the workplace.

The first subdivision of overall Competency typically reflects the significant major functions of the profession. These major segments are called UNITS OF COMPETENCY in Australian Standards.
A draft set of Standards for Architecture includes the following seven UNITS OF COMPETENCY:

UNIT OF COMPETENCY
1. Communications
2. Brief Preparation
3. Design
4. Contract Documentation
5. Practice Management
6. Post Construction
7. Contract Administration

Each of these UNITS represents a major segment of the professional performance of practising Architects.

Each UNIT OF COMPETENCY describes a broad area of professional performance. A Unit is still likely to be too large to be practically demonstrable or assessable for the purposes of recognition of competence of individuals in the workplace; one of the major roles of Competency Standards.

Units are thus further subdivided into subsidiary ELEMENTS OF COMPETENCY. The ELEMENTS OF COMPETENCY constitute the building blocks of each Unit of Competency. They describe in more detail what is done in the workplace in each Unit of Competency.

An example can be drawn from the draft Standards for Architecture cited above in which Unit 3 (Design) is further divided into its Elements of Competency:
UNIT OF COMPETENCY:
3. Design

ELEMENTS OF COMPETENCY:
3.1 Determine overall design objectives in respect of client, user and community intent;
3.2 Take account of historic, human and environmental context of the project;
3.3 Determine the size, shape and location of building elements;
3.4 Determine the choice and disposition of structural systems and components; ........

Another example from the Dietitian's project follows:--

UNIT OF COMPETENCY:
3. Collects, organises and assesses data relating to the health and nutritional status of individuals and groups.

ELEMENTS OF COMPETENCY:
3.1 Collects food intake data;
3.2 Provides quantitative and qualitative assessment of food intake data;
3.3 Collects biomedical, social and environmental data;
3.4 Assesses and assigns priorities to all data;
3.5 Draws sound conclusions from all data.

As can be seen from these examples, the ELEMENTS OF COMPETENCY describe in more detail what is done in the professional workplace within each Unit of Competency. They are expressed in an active form; i.e. "what does the professional do?". 
ELEMENTS OF COMPETENCY represent discrete identifiable components or segments of professional performance. They should be written such that they:

i. integrate the knowledge, skills, attitudes and other important attributes associated with an identifiable aspect of professional performance in the workplace;

ii. are expressed in terms of performance in the professional workplace;

iii. can be readily understood by the profession and the community it serves;

iv. are recognisable and demonstrable in the workplace; and

v. amenable to assessment by a qualified assessor.

Popular synonyms for an Element of Competency are a "Statement of Competence" or a "Competence", with plural forms of "Competences" and "Competencies" (which is also the plural of "Competency"). This range of terms is potentially confusing. The uniform use of Units and Elements of Competency is now preferred in the Australian context.

It will be evident from the foregoing discussion that Units and Elements of Competency describe what is done in the workplace; they have nothing to say about how well it is done.

5.3.2 Performance Criteria

In addition to describing what is done in the workplace, Competency-Based Standards aim to describe the standard of performance required; i.e. how well a competent professional should perform in the workplace. This is the role of PERFORMANCE CRITERIA, which specify the type of performance in the workplace that would constitute adequate evidence of personal competence (i.e. from which competence can be validly inferred, as discussed in Chapter 4). Performance Criteria seek to specify competent performance in "output" terms;
i.e. Performance Criteria express what a competent professional would do in terms of observable results and/or behaviour in the workplace.

Each Element of Competency is thus accompanied by one or more (typically a series) of Performance Criteria, which together specify an appropriate level of performance in that particular field of professional activity. It is important to recognise that Performance Criteria are not simply further subdivisions of the Elements of Competency, in the way that Elements of Competency form the building blocks of each Unit of Competency.

Performance Criteria are quite distinct from Elements of Competency in both purpose and presentation. Performance Criteria describe the overall evidence from which competent performance in an Element(s) of Competency would be inferred. The following example is drawn from draft Standards for the Veterinary Profession:–

**ELEMENT OF COMPETENCY:**

1. Obtain and record an accurate history of animals and their environment.

**PERFORMANCE CRITERIA:**

1.1 a productive relationship is established with giver(s) of information;

1.2 enquiries are purposive, systematic, efficient and responsive to information obtained;

1.3 uncertainties are clarified;

1.4 the information recorded is accurate, relevant and organised clearly in a form which can be interpreted readily by other users;

1.5 deficiencies in the information available are identified, together with the means to obtain additional information.
These Performance Criteria set out clearly what type of evidence (i.e. performance) would be regarded as indicative of competence in this aspect of professional work. They identify how competence is likely to be expressed in the workplace in terms of results and/or behaviour; i.e. what is achieved in the workplace in the particular Element(s) of Competency.

Many underlying personal characteristics (attributes) are reflected in those criteria, but none are identified specifically. Note also that the list of Performance Criteria is not intended to be exhaustive, rather it focuses on key aspects of performance.

5.3.3 Complexities of Performance Criteria

The distinction between Performance Criteria and Elements of Competency is a common cause of confusion. To gain an understanding of the concept of Performance Criteria, it is sometimes helpful to consider Performance Criteria to be a special type of reference "checklist" setting out the critical aspects of professional performance within each Element of Competency, which an assessor would refer to when collecting evidence of competence by observation of performance in the workplace.

In using this analogy of a "checklist", it is important to recognise the limitations of the analogy. Performance Criteria are not assessment instruments. They should not be considered as items that can simply be "checked off" in the mechanical way that some checklists are used. A Performance Criterion of only a few words may imply quite an elaborate process of observation and assessment.

For example, one of the Performance Criteria for veterinary surgery is:-- "Contingencies are anticipated". This is not a trivial aspect of routine performance to be "ticked off". It clearly represents a range of capacities that typify much of professional work, including the exercise of professional judgement. A properly constructed assessment technique would be necessary to establish this aspect of competence validly. A qualified assessor would nonetheless wish to collect
evidence of this aspect of performance and it is properly included as a criterion of competent performance in Competency Standards.

Similarly, a list of Performance Criteria should not necessarily imply observation of aspects of performance in isolation as e.g. a mechanic might do in checking off the items on a roadworthiness certificate or a pilot might do when completing a pre-landing checklist. The list of Performance Criteria is better thought of in toto as a continuum of evidence of competent performance in a particular Element of Competency. Unlike some routine tasks, most aspects of professional performance are not suited to disaggregation into simple components. The following example from a complex aspect of veterinary practice illustrates this point.

ELEMENT OF COMPETENCY:
5. Provide first-aid and implement emergency veterinary care;

PERFORMANCE CRITERIA:
5.1 problems requiring urgent attention are identified and ranked in order of importance;
5.2 options for care and treatment are identified and evaluated;
5.3 emergency treatment is tenable and timely;
5.4 suffering is alleviated in a manner consistent with the circumstances;
5.5 veterinary care is consistent with prevailing ethical and legal constraints.

Most professionals will have been exposed to a situation requiring first aid, whether for people or animals. In reflecting on such a situation, it should be possible to envisage how the performance criteria listed above (5.1 – 5.5) would provide evidence of competent performance. Note how Performance Criterion # 5.5 reflects a clear set of contextual factors that would not be expected of a layperson.
A different set of ethical and legal factors would prevail in the delivery of first aid to people rather than animals. Provision of first aid to people also provides a good example of articulation of the workforce. The range of care available might include laypeople, "laypeople" with some first-aid training, ambulance officers, general medical & nursing staff, specialist medical care etc. The delivery of care will obviously be affected by the contexts in which those people work. Competent people would be expected to be able to transfer their abilities across a range of relevant contexts.

Another example of Performance Criteria is provided from Adult Basic Education (ABE) Teaching.

**ELEMENT OF COMPETENCY:**
3. Incorporate adult learning principles into professional practice.

**PERFORMANCE CRITERIA:**
In any ABE teaching situation, the competent teacher will:
3.1 Promote independence and self direction in the learner;
3.2 Model ways of learning and using language;
3.3 Challenge students to expand their learning horizons at the same time as meeting student's expressed immediate needs;
3.4 Acknowledge and incorporate the experiences that adults bring to the classroom into learning activities;
3.5 Use the classroom dynamic to reflect mutual respect between teacher and student.

These two sets of Performance Criteria drawn from veterinary science and teaching illustrate the aspects of professional performance considered to be important evidence of competent performance. Clearly both lists are comprehensive, but not exhaustive. Both reflect a broad range of underlying attributes that enable competent performance. These attributes are expressed in an integrated way as aspects of overall performance, not as attributes per se.
For example, provision of first aid requires some knowledge of physiology but it would be quite inappropriate to write "Knows relevant Physiology" as one of the Performance Criteria. Similarly, Criterion 3.2 from the Adult Basic Education example is not written as "Knows ways of learning and using language"; rather the Performance Criterion is written in terms of performance in the workplace i.e. "Model ways of learning and using language". The underlying attributes are implicit in the expression of performance in the workplace.

Like the examples of Performance Criteria given in the preceding Chapter, these two additional examples further illustrate the continuum of evidence contained in Performance Criteria for professions. A little reflection will indicate that it would be unlikely for an assessor to contemplate assessing performance under each of the Performance Criteria separately. What is required is a mechanism that recognises these aspects of performance in an integrated assessment of overall performance.

5.3.4 Format of Competency Standards

In combination, all of the UNITS OF COMPETENCY of the profession, their subsidiary ELEMENTS OF COMPETENCY and associated PERFORMANCE CRITERIA together constitute a set of COMPETENCY STANDARDS.

The Competency Standards describe, in a public statement, what is done by the profession and the standard of performance required in the workplace for the whole profession or some part(s) of it (such as an industry, occupation etc) at a particular level of the profession (such as the Entry Level).

The general format to be adopted for Competency Standards in Australia, including Units of Competency, Elements of Competency and Performance Criteria is set out diagrammatically as follows.
The framework so far described represents the **basic form** for Australian Competency Standards. Further **elaborations** on this basic framework **may be necessary** to properly cater for the needs of individual professions.

### 5.4 Context of Professional Performance (Range Indicators)

As indicated earlier, the context in which Performance Criteria would be applied should be clear in Competency-Based Standards. The context is typically the actual (or simulated) workplace. In some cases the Elements of Competency in the basic framework of Competency-Based Standards may not convey sufficiently clearly the context(s) in which Performance Criteria are intended to apply.

For instance, in the veterinary profession, a wide range of animals and contexts are encountered by the profession as whole. An individual veterinarian is not expected to be competent in all of those circumstances for registration at the Entry Level of the profession. There is a need for a mechanism to specify more clearly what
circumstances apply to the Entry Level of the profession for the purposes of registration of individuals to practise.

The circumstances in which competent performance is expected have been specified by a system of **Range Indicators** (also called Range Variables, a term not used here); an illustrative example of which is given below. This example is drawn from Veterinary Science. It is the same example used to illustrate Units and Elements of Competency above, now with the addition of a Range Indicator to indicate the circumstances in which the Performance Criteria apply:–

**ELEMENT OF COMPETENCY:**

1. Obtain and record an accurate history of animals and their environment.

**PERFORMANCE CRITERIA:**

1.1 a productive relationship is established with giver(s) of information;

1.2 enquiries are purposive, systematic, efficient and responsive to information obtained;

1.3 uncertainties are clarified;

1.4 the information recorded is accurate, relevant and organised clearly in a form which can be interpreted readily by other users;

1.5 deficiencies in information available are identified, together with the means to obtain additional information.

**RANGE INDICATOR:**

- RECORD – Written & Electronic
- HISTORY – Verbal and written
- ANIMALS – Sheep, Cattle, Horses, Dogs, Cats, Pigs, Fish
- ENVIRONMENT – Past & present
As can be seen from this illustrative example of a Range Indicator, it amplifies the meanings of (four) key terms in the Element of Competency (Record, History, Animals, Environment); thus describing more precisely the circumstances in which the Performance Criteria would be applied. Such a Range Indicator provides guidance to assessors and candidates for assessment. It is not necessary to specify the environment of assessment. Competency Standards imply that assessment would be done in the actual or simulated workplace.

Other professions that work in a diversity of settings may find the use of Range Indicators desirable or essential. For instance, they may provide a helpful means to identify different settings associated with different parts of a profession e.g. private practice vs. employment in the public sector. Another more complex Range Indicator drawn from the Veterinary Profession is given on the following page. Its significance to the veterinary profession and others is explained below.

The (draft) Range Indicator shown on the next page is based on a two-dimensional matrix, which specifies the combinations of veterinary contexts (first dimension, see top of matrix) in which competence is required with certain species (second dimension, see left axis of matrix) for registration at the Entry Level of the profession. Unlike the simple example given above, which applied to only one Element of Competency, this Range Indicator applies to all of the Elements of Competency at the Entry Level of the profession.

Its purpose is to specify, for assessors and candidates, the contexts in which competent performance will be required for registration at the Entry Level of the profession. The details of this matrix type of Range Indicator are not particularly important in the present context. However the general concept of a matrix indicator that brings together two or more dimensions of professional performance in an overarching Range Indicator may be applicable to other professions that work in a diversity of contexts.
OCCUPATIONAL STANDARDS FOR REGISTERED VETERINARIANs

(DRAFT) RANGE INDICATOR

The Range of Animals and Contexts to which Entry-Level Competencies and Performance Criteria apply for the purposes of Registration is limited to certain species or classes of animals and a set of familiar Contexts in which those animals are commonly encountered at the Entry Level of the veterinary profession in Australia, as set out in the Table below.

Legend to Table:  X = Entry-Level Competencies Required
                 * = See relevant Note below Table

<table>
<thead>
<tr>
<th>ANIMALS</th>
<th>INDIVIDUAL</th>
<th>PERFORMANCE /WORKING</th>
<th>PRODUCTION</th>
<th>LAB.</th>
<th>OTHER</th>
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<tbody>
<tr>
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<td>X</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>CATS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>* (3)</td>
</tr>
<tr>
<td>HORSES</td>
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<td>X</td>
<td></td>
<td></td>
<td>* (3)</td>
</tr>
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<td>CATTLE</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
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<td>* (3)</td>
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<tr>
<td>GOATS</td>
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<td>* (3)</td>
</tr>
<tr>
<td>PIGS</td>
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<td>* (3)</td>
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<td>* (3)</td>
<td>* (3)</td>
<td>* (3)</td>
</tr>
</tbody>
</table>

NOTES:

(1) **ANIMALS:** This Table shows the Context(s) in which Entry-Level Competencies apply to particular Animals for the purposes of Registration. Allocation of Animals to particular contexts in this Table does not relieve Entry-Level Veterinarians of their responsibility to be able to obtain appropriate veterinary attention for these animals in other contexts, whether or not it is provided independently or by an Entry-Level veterinarian (See Note 3 below).

(2) **INDIVIDUAL:** This means individual Pets/Companion Animals encountered in their usual Context or an individual of the same species drawn from some other context e.g. a laboratory, a zoo, the wild etc.

(3) **OTHER:** Entry-Level Veterinarians should be able to determine how to provide or obtain appropriate veterinary attention, care and expertise for all animals in any context encountered at the Entry Level of the profession, irrespective of whether they actually provide some or all of the veterinary input required individually.
For example, health professionals may consider a matrix that sets out types of work (e.g. therapy, prevention, education etc.) against the types of patients/clients involved (e.g. neonate, adolescent, adult, geriatric etc.). Further discussion of approaches to matrices is given in NOOSR Research Paper No.1 (Part 4).

5.5 Conclusion

The features of the overall format of Competency Standards described in this Chapter are summarised diagrammatically on the next page. As indicated earlier, this is the basic format, which may need to be adapted to suit the needs of a particular profession. Such adaptations are likely to be by way of elaboration and fine tuning, not by major departures from the basic format which is a suitable starting point for all occupations. Some innovative examples of ways to refine the basic format are given in Chapters 6 & 7.

The next Chapter illustrates how a variety of professions have gone about translation of their concepts of professional competence into Competency Standards appropriate to the professional workplace.
OVERVIEW OF FORMAT OF COMPETENCY STANDARDS

OVERALL COMPETENCY OF PROFESSION

UNITS OF COMPETENCY
Major subdivisions of overall competency

ELEMENTS OF COMPETENCY
Further divisions of Units

PERFORMANCE CRITERIA
Level of performance for each Element

RANGE INDICATORS (OPTIONAL)
Range of contexts and conditions to which Performance Criteria apply
6. **EXAMPLES OF HOW TO DEVELOP STANDARDS**

6.1 **Introduction**

This Chapter illustrates, by way of examples from actual projects, how Competency Standards are being developed in Australia. Examples have been selected to illustrate a variety of approaches to projects that differ according to the nature and needs of particular professions.

Despite variations in possible approaches, the development of Competency Standards involves a number of **key phases common to all professions**, as set out below.

- **An analysis of the PURPOSE & FUNCTIONS OF THE PROFESSION and the ROLES & ACTIVITIES of its MEMBERS.** This analysis should not be restricted to individual tasks. It must consider whole work roles and the management skills and other abilities that enable these roles to be undertaken competently. The Units and Elements of Competency referred to in Chapter 5 are the form in which such an analysis should be expressed.

- **An analysis of the ATTRIBUTES that enable individuals to perform these roles and activities competently**; i.e. what knowledge, skills, attitudes etc. are needed for competent performance in the professional workplace.

- **Development of criteria against which competent performance can be judged**; i.e. statements of what evidence would be needed to judge that the performance was competent. These are called "Performance Criteria". Performance Criteria should reflect the analyses of activities and attributes referred to above.
In some cases these Criteria may list evidence that is directly and easily observable. As discussed in Chapter 5, in most instances it will be necessary to employ more complex Performance Criteria to deal with complex aspects of professional work and higher order skills. These may not necessarily be observable directly, certainly not in a "one-off" observation.

- A consideration of the contexts in which the profession operates. This phase should consider all of the sectors of the profession and ensure that the peculiarities of individual sectors are taken into account. The Entry Level should receive particular (but not exclusive) emphasis in the current context.

Different parts of the profession's work may be dealt with by way of Core/Industry/Occupational Competencies and/or Range Indicators (as discussed in Chapter 4).

None of these parts of the process of developing Competency Standards is free of problems, as the issues discussed earlier illustrate. Nonetheless a number of professions have succeeded in developing draft Standards, as the examples outlined in this Guide demonstrate. This Chapter examines how they have done it.

6.2 How to Develop Standards

There are many ways of establishing Competency Standards for a profession. The key phases of the work outlined above translate into FOUR PRACTICAL STEPS that are likely to be common to all methods. These are as follows:

**STEP 1**

Examination of existing information about the profession;
STEP 2
Choice of a combination of techniques that:—

i. takes into account practical considerations,

ii. deals with the level and depth of the information sought,

iii. captures the complexity of practice in the profession; and

iv. achieves the above within available resources.

STEP 3
Application of the techniques i.e. actually undertaking the development project (in a satisfactory time frame);

STEP 4
Continuing consultation with the various parties involved.

Examples of these four Steps are given in sequence in the following Sections (6.2.1 - 6.2.4). Brief explanatory notes concerning particular techniques are given where relevant.

6.2.1 STEP 1: EXAMINATION OF EXISTING INFORMATION
In this step a profession should examine any work that has already been done, which might help to elucidate the functions, activities, roles, skills, tasks or Competencies of the profession. This could include government reports, studies undertaken by the profession, curriculum documents and so on.

EXAMPLES OF THE USE OF EXISTING INFORMATION
Accountancy
In their proposal for funding for the development of Competency Standards, the Australian Society of Certified Practising Accountants and the Institute of Chartered Accountants state that they intend to use a previous Delphi study undertaken in
1988, but to supplement this by surveys and interviews appropriate to development of Competency Standards.

*Delphi Technique: This is a specialised type of survey designed to be used in situations of uncertainty and/or where change is taking place. It aims to reach consensus by asking a group of respondents to an initial survey to modify their responses to the first questionnaire in the light of the opinions of the other participants, which are summarised and sent with a second survey. This process is repeated as required to reach consensus. For further details see e.g. Anderson & Jones, (1986) and NOOSR Research Paper No.1 (1990; Part 6).

As the Delphi study was a systematic and detailed study of the educational needs of aspiring and professional accountants, which included an analysis of skills needed in the profession, it could clearly be built on to develop Competency Standards.

**Dietetics**

In developing their Competency Standards the Dietitians Association of Australia made extensive use of a previous document which had been developed by a sub-committee of the Association. Despite some reservations within the profession about the document, it was useful in a number of ways.

There had been an attempt to use the document as the basis for revision of the NOOSR exam. The difficulties associated with this clarified the deficiencies of the document and enabled those involved with the development of Competency Standards to focus their work.

The individuals who were involved with the development of the earlier draft were invited to participate in the development of the Standards. This meant that the process was considerably quicker than it would otherwise have been as much of the basic thinking had already been done.
Nursing
In developing the competency standards for the nursing profession the ANRAC Steering Committee initially developed a list of competency statements (ANRAC, 1988). In the second stage the ANRAC Steering Committee commissioned a research team to validate the competencies and to develop an assessment technology (ANRAC, 1990). The profession drew on studies of nursing competence and literature on assessment of clinical competence.

Pharmacy
The Pharmacy profession has been exploring the development of occupationally-related professional standards for some years. That previous work has provided valuable experience and a foundation for development of national Competency Standards.

Veterinary Science
Some of the Faculties of Veterinary Science in Australia had developed statements, of varying detail, concerning some of the occupationally related qualities it was hoped would be present in their new graduates. These statements were combined to provide a useful starting document for further input from the profession.

Professions should recognise that some existing information concerning the profession may have been developed/collected in a format that is not well suited to translation into Competency Standards. In such cases it will be preferable to start afresh rather than spend excessive effort trying to adapt unsuitable material to development of Competency Standards. For example, curriculum documents concerned with the particular disciplines in a course are likely to be of only limited use for development of Competency Standards, which are concerned with the overall integrated performance of graduates in the workplace.
6.2.2 **STEP 2: CHOICE OF A COMBINATION OF TECHNIQUES**

While there are many techniques that could be used to develop Competency Standards, professions will need to choose a combination of techniques that address a range of practical and theoretical issues appropriate to the profession concerned. The techniques available are detailed in NOOSR Research Paper No.1 (1990, Part 6). Some key issues related to selection of techniques are discussed in that paper and further references are given.

In general, it is essential to keep the following **key points** in mind when choosing methods for establishing Standards.

i. **The chosen methods should analyse the functions/activities/roles of the profession and the attributes (knowledge, skills, attitudes etc.) of individuals that enable professional work to be carried out competently;**

ii. **It is necessary to adopt methods that develop a set of Standards in a practical and cost–effective way;**

iii. **The methods used should lead to wide endorsement of the Standards by the profession;**

iv. **The methods should produce Standards that can be assessed effectively;**

v. **The more important the purpose of the analysis, the more that the profession needs to be convinced of the validity of the techniques used. The best way to increase the validity is to use a combination of methods.**
EXAMPLES OF TECHNIQUES

This Section outlines some of the techniques that have been used successfully, or are currently proposed, by professions that are developing Competency Standards.

Accountancy

This is a large profession with approximately 80,000 practitioners represented by well-organised and active Associations – The Australian Society of Certified Practising Accountants and The Institute of Chartered Accountants. In addition there is an association which represents non-degreed Accountants, the National Institute of Accountants.

Accountancy Associations are about to start the formal process of developing Competency Standards, building on a large scale study of the educational needs of Accountants undertaken by Birkett in 1988 using a Delphi survey, as well as surveys and interviews with members of the profession and others who are seeking accreditation. It is envisaged that the result will be validated by discussions with various groups within the profession (see Step 4: Consultation).

Adult Basic Education Teaching

Adult Basic Education (ABE) teachers are primarily concerned with teaching literacy and numeracy to adults and adolescents. This Sector of teaching has been somewhat marginalised, being undertaken in some Australian States by unqualified volunteers. In other States ABE is an established part of the TAFE system or other sector with highly qualified teachers. The project to establish Standards for ABE teaching was funded by the International Literacy Year program. The main aim is to provide a clear statement of what professional ABE teaching involves. The existing national professional association has not been able to set professional standards on a national basis as well as monitor entry-level requirements. As ABE becomes more professionalised (this project is an indication of that trend), these roles will need to be assumed by an appropriate professional body.
This project was about half completed at the time of writing. It consists of three major phases as set out below:

i. A series of Functional Analysis workshops;

ii. Some observations of selected teachers and integration of those observations with ethnographic research undertaken by other researchers and analyses of work diaries kept by teachers;

iii. Critical Incident interviews.

*Functional Analysis: This is a workshop technique that aims to break down an occupation into its major roles, functions and activities. It also considers the attributes which enable those roles and activities to be performed. Further details are given in e.g. NOOSR Research Paper No.6 (1992); NOOSR Research Paper No.1, (1990; Part 6) & Burke (1989). It is a "top-down" analysis of a profession to identify its major functions. It is often compared with an analysis of a corporation in which a mission statement is identified and the organisation is divided into major functions (e.g. sales, productions, accounts etc.) in relation to an overall purpose identified in the mission statement. Functional Analysis should not be confused with another technique called functional job analysis which is a questionnaire technique used to analyse and break down a job into its smallest parts, not necessarily in relation to major functions; functional job analysis is not appropriate to the professions.

*Critical Incident technique: This is an interview method in which a series of experienced practitioners are asked to identify the important aspects of their work, i.e. those that are critical to competent performance. It leads to identification of major components of a work role and the attributes considered critical to success in those roles. Further details are given in NOOSR Research Paper No. 1 (1990; Part 6).

**Dietetics**

(As this is possibly the most comprehensive example of Functional Analysis yet used by professions in Australia, the rationale for the choice of that technique for Dietetics is discussed in detail).
The Dietetics project consisted of the following main steps:

1. Group process workshops using a modified Functional Analysis technique to develop a draft set of Competency Standards.

2. A number of Critical Incident Interviews with recent graduate dietitians to refine the draft set of competency standards.

3. Circulation of the various drafts of the Competency Standards for comment to various groups and individuals within the dietetics profession.

4. Presentation of a paper/workshop on the progress of the project at the annual conference of the Dietitians Association of Australia.

5. Further workshops to refine and develop the Competency Standards.

There were a number of practical considerations to be taken into account in making the decision to use the above combination of methods for the Dietetics project.

- The project needed to be undertaken on a national basis involving data collection and representation from as many States as possible. This meant that there were some restrictions on the number and type of techniques that could be used within financial constraints.
- The project was to be completed within approximately twelve months. This too placed some restrictions on the range of techniques that could be used.

- The number in the profession was moderate, some 1300, but they are dispersed widely throughout Australia. Significant travel would be required if all interests were to be fairly represented. This, taken together with the previous two considerations, meant that widespread interviewing would be difficult to use as the basic method.

- The range of contexts in which dietitians work – large and small hospitals, food service and community settings – while not extensive, meant that techniques based on representative sampling would also be quite expensive.

- While the dietetics profession is changing as science advances, the changes are not occurring so fast that this would affect the choice of techniques used. Thus there was no need for a Search Conference, which is a technique that focuses on likely outcomes and futures in times of significant change.

These practical considerations pointed to a group technique as the most appropriate. There are several group techniques that can be used in the development of Competency Standards, including Delphi, DACUM, Nominal Groups (see NOOSR Research Paper No.1, 1990; Part 6) and Functional Analysis (see also Burke, 1989).

As noted previously, it is essential that the chosen technique(s) does more than break down the occupation into its various tasks and sub-tasks without considering overall functions, roles and attributes. A detailed list of tasks
will not only be both long and unmanageable, it will, more importantly, represent an invalid oversimplified analysis of the profession.

Because of its potential to avoid these problems, Functional Analysis was adopted. The major advantages of this technique are that it is characterised by a holistic approach to analysing work and it has an orientation to the future. In addition, it is able to capture technical skills, management skills, and the context in which the skills are performed.

The major disadvantage of the technique is that it is relatively untried. Examples of its use in the U.K. at the time of the project's commencement were restricted to occupations at levels 1 to 4 of the Standards Framework, which had not taken into account the need to analyse the attributes underlying performance. It was decided to use the technique in a modified form that did analyse attributes. A detailed account of how the technique was used is given in NOOSR Research Paper No. 6 (1992).

The major theoretical limitation of Functional Analysis is one shared by all group methods. They rely entirely on the views of selected experts/practitioners and their ability to understand, identify and express the work roles of their occupation. Clearly there is a need to validate the views of the experts/practitioners by some other techniques. Their views should, ideally, be complemented by observations of practitioners at the occupational level for which the Competency Standards are being developed. This would help to confirm and validate the various activities, tasks, skills etc. and identify/clarify the roles that people undertake.

Such observations are limited in their capacity to identify the attributes that enable a practitioner to perform competently. It is difficult to infer much about some complex attributes from limited observation of individuals. In such cases observations should be complemented by an interview technique that identifies those attributes that are difficult to observe and articulate. The best method for achieving this is the Critical Incident interview.
Given that in this case resources would not allow for both extensive observations and Critical Incident Interviews, it was decided that it was more important to undertake interviews, which identified the attributes individuals needed to undertake the activities and roles, than to confirm the roles themselves by observation. The basis of this decision was the fact that considerable analysis of roles had already been undertaken when the earlier draft set of competencies was being developed. Twenty five such interviews were conducted with new practitioners drawn from most of the States and from all the contexts in which practice is undertaken.

The final combination of techniques (modified Functional Analysis, Critical Incident interviews and consultation with the profession at large) was chosen to control the limitations each of them has if used in isolation. (See NOOSR Research Paper No.1 1990, Part 6, for discussion of the importance of such controls).

**Nursing**

There were three major phases of the research: literature review, observational study and document analysis. The observational study was the central feature of the project. The major reason for this was that the study was largely a validation of a set of competencies which had been created in a non-empirical process.

This meant there was a need to obtain first hand, direct evidence of the work of the profession. In addition, the belief of the researchers that all of the stakeholders should be involved in undertaking the research suggested the use of observational techniques.

Given the large size of the profession it was necessary in any case to enlist the support and co-operation of practising nurses. (See STEP 4: Consultation). Almost all of the major hospitals in the capital cities participated in the project. A series of workshops was also held, one in each State at which nurses were given the opportunity to comment on and check the Competencies previously developed by ANRAC (ANRAC, 1988). (For a detailed discussion of this project see NOOSR Research Paper No. 4 (1990).
Pharmacy

Pharmacy, a large profession with many representative groups, is about to embark on a project to develop Standards, building on earlier work in related areas. It is proposed to develop Core Competencies (for all Pharmacists on entering the profession) together with Standards for the major areas of professional work; community, hospital and industry. Its steering group is representative of some ten major professional groups/societies in the profession. The steering group, through an executive, will develop drafts which will be distributed to identified members of the wider constituencies represented in the steering group.

Social work and Social Welfare

These two professions have a large membership. Individuals practise in a wide variety of contexts, some of which are not well documented. The two professions have not traditionally worked closely together. They have now formed a joint steering group for the purpose of establishing Competency Standards.

Their choice of techniques is interesting because it raises a number of issues that may be common to a number of other professions. They propose to divide the project into two stages. The first will work on the Core Competencies which are common to all fields of practice and the second will work on the individual competencies for the various fields of practice (aims similar to Pharmacy).

Separate consideration will be given to the "higher order" Competencies of the profession, to allay a concern that they may otherwise be overlooked. It is intended to use a variety of methods: an expert workshop using a Nominal Group* technique, a series of modified DACUM* workshops, and a survey of their members to develop a better picture of their professions (* explanation follows).
Nominal Group technique: This is a workshop technique which asks experts to answer, in turn, questions posed by a facilitator. The facilitator links the individual contributions and then ranks the ideas with the group to produce priorities and consensus (see Anderson & Jones, 1986; NOOSR Research Paper No.1, 1990; Part 6).

DACUM: This is a workshop technique using a group of experts to break down their occupation into its main roles, activities (and tasks if desired). It is often used to develop a curriculum (hence the acronym) and in that case there is a need to analyse the knowledge and other attributes needed to undertake the roles. Both aspects of the technique are relevant here. See details in NOOSR Research Paper No.1 (1990; Part 6) and Fuller, Oxley & Hayton (1989).

The DACUM technique has been suggested because, inter alia, it has the potential to involve the disparate members of the professions, members are aware of the technique and it can involve relatively large numbers of the professions. The national conference of the Associations will also be a part of the methodology; there will be workshops where individuals will be able to contribute to and validate work already done.

Veterinary Science

Development of Standards for the Veterinary Profession was undertaken by the Australian Veterinary Association (AVA), the national representative body of the profession. The AVA was assisted by the National Veterinary Director (Chief Executive Officer) of the AVA, who also acted as executive officer to the project, and a consultant veterinarian who provided expert input and coordinated the project nationally.

The veterinary project began in August 1990 with information obtained from Veterinary Faculties. This was augmented by input from the profession through the use of the Nominal Group technique (involving leaders in the profession), Delphi technique, surveys of selected representative groups and aspects of a modified Functional Analysis based on a model of professional performance.
A group of seven experienced members of the profession was convened initially to amplify a starting document incorporating existing information by means of a Nominal Group. Each member of the group added to the document as they saw fit and then the views of each member were discussed and evaluated by the group. The results of that work were in turn distributed to other groups of experts (The Board of Examiners for the NOOSR National Veterinary Examination [NVE]; the Panel in Veterinary Science of NOOSR and the Veterinary Surgeon's Boards of the States and Territories). These groups were consulted repeatedly over six months along the lines of a Delphi model, in which comments were received and modified versions of the developing document were recirculated to promote consensus.

The Delphi work was based on a judgemental sample (as distinct from random) including members of the profession who had been, and would continue to be, involved with the NOOSR National Veterinary Examination and, through Veterinary Surgeons' Boards, registration of graduates to practise. The choice of judgemental sampling was based on the assumption that if any proposed Standards proved to be unacceptable to these groups, they would be unlikely to gain the endorsement of the wider profession. This group was also able to contribute a wealth of experience. The members were also in strong positions to facilitate the educational communication that should accompany the development of Standards by informing the major groups they represented in the profession.

(Other professions should recognise the importance of education of the profession about Competency Standards. In view of NOOSR's historical concern with overseas graduates, some professionals may automatically assume that Competency Standards apply only to overseas graduates).

Circulation of the developing document to more groups within the profession continued via the AVA and a much revised version was eventually published in the AVA News (a national newsletter to all members) and further comment was obtained at the national conference. Details of work with particular species of
animals has also been obtained from surveys of specialists and general practitioners. This was crucial to development of Range Indicators to cater for different aspects of the profession. There has also been a progressive program of involvement of the members of Veterinary Faculties.

The Standards for Veterinary Science attempt to identify the Competencies that are common to all registered veterinarians together with those that are associated with particular branches/levels of the profession. A framework has been developed to incorporate all branches and levels (both extant and proposed), although the major emphasis has been on Standards for the Entry Level of the profession.

6.2.3 **STEP 3: APPLICATION OF TECHNIQUES**

The application of the techniques outlined in the previous Step cannot be undertaken without a knowledge of their complexities. For this reason a number of professions have felt it useful to employ consultants who are experts in the use of such techniques. On the other hand, the fact that other professions have started to apply the techniques using only members of their profession demonstrates that consultants will not always be necessary.

There are many good readily-available references on how to undertake techniques of the kind outlined above (see NOOSR Research Paper No.1, Parts 4 – 6, for a good starting point). Thus, this Section will concentrate mainly on the time frame needed to undertake a project to establish Competency Standards.

It should be stated at the outset that NOOSR's view is that the professions need to have developed a nationally representative steering group prior to commencing a project. NOOSR should be consulted on this point (see also NOOSR Guidelines for support). This preliminary phase can take some time but it is of utmost importance that the profession is committed to establishing an effective steering group before embarking on development of Standards.
EXAMPLES OF TIMEFRAMES

Dietetics

TIMETABLE OF MAIN ACTIVITIES

November 1990 and February 1991:
Two 2-day workshops to develop a draft set of Competency Standards using a modified Functional Analysis. Some writing of draft Standards by individual group members took place in the interval between the two workshops.

February–May 1991:
Critical incident interviews with 25 recent graduate dietitians to refine the draft Standards.

March–October 1991:
Circulation of various drafts for comment to various groups and individuals within the dietetics profession. A later draft was also sent to Health Ministers, State and Federal Unions covering dietitians, and State and Territory Registration Boards. During this time the workshop members also reflected on the draft produced at the February workshop. They were also able to report back to their respective State representatives and associations for comment and input. The various phases of this part of the project are elaborated below.

May 1991:
Presentation of a paper plus workshop on the progress of the project at the annual conference of the Dietitians Association of Australia.

June 1991 and October 1991:
Two further 2-day workshops to consolidate and fine tune the Standards following the consultation processes with the profession at
large. (Originally only one further workshop was planned, but the fourth one was needed to take full account of the results of the consultation process). At the October workshop assessment scenarios were also discussed.

**December 1991:**

The overall outline of the Dietetics project is illustrated in a flow chart later in this Chapter, which provides a useful model for other professions.

**Occupational Therapy**

This is an example of a profession where there was no previous experience in developing Competency Standards. A feature of this project is a comprehensive planning flow chart which is given later.

The two flow charts that follow (Dietetics, p64; Occupational Therapy, p65) are useful guides to other professions that are planning to develop Standards. Although planning charts are likely to be amended as the project unfolds and progress is evaluated (as has in fact occurred in both of these projects), development of an overview of the entire project by way of a flow chart is an invaluable aid to placing a project on a firm footing from the outset.

A flow chart also aids an appreciation of the whole project by those who have an interest in it but are not directly involved. The flow chart may also highlight a need to link the project to professional meetings, national conferences and publication dates for newsletters etc..
FLOW CHART OF PROJECT PROGRESS

NOV 1990

DEC 1990

JAN 1991

FEB 1991

MAR 1991

APR 1991

MAY 1991

JUNE 1991

JULY 1991

AUG 1991

SEPT 1991

OCT 1991

NOV 1991

DEC 1991

Workshop 1
Functional Analysis

Decision to Establish Standards

Individuals reflect on results & write standards

Workshop 2
Functional Analysis

Workshop

Critical incident interviews to Validate Attributes Identified in Workshops

individuals reflect on competencies developed during Workshop

Paper at Annual Conference of DAA

Consultations in each state

Final Drafting & Submission to NOOSR
PROPOSED PROJECT PROCESS AND TIMELINES

Establish OT Conceptual Model

Develop New Competency list through Professional analysis group techniques

Review Existing Draft

Draft Competency List

Field-test Draft Competencies

Analyse data from clinical observations and interviews

Re-draft Statement

Conduct Workshops to specify Competency Statements

Circulate draft among Stakeholders

Final print and circulation

STAGE 1
SEPTEMBER
TO
FEBRUARY

STAGE 2
DECEMBER
TO
MAY

STAGE 3
JUNE
TO
SEPTEMBER
6.2.4 **STEP 4: CONTINUING CONSULTATION**

It is vitally important for there to be widespread discussion of the project within the profession as a whole, both while it is being undertaken and after the development of draft Competency Standards. Industrial parties should be included in the consultative process.

Examples of how such discussions were built into the research methodologies have already been mentioned above. The importance of these discussions is such that it is worth drawing attention to this aspect again here.

**EXAMPLES OF CONSULTATION**

**Dietetics**

As is demonstrated in the Timetable and Flow Chart discussed above, the project ensured that consultation occurred at a *variety of stages* in the project. In the first instance *workshops* participants were chosen partly because of their capacity to initiate and undertake consultation in their States. Other consultation included a conference *paper and workshop sessions* at the annual *conference* of the Association and calls for comment from the profession as a whole.

**Nursing**

The most recent work in nursing has been concerned with validation of competencies already developed by ANRAC (1988) and (mainly) with development of assessment methods related to those competencies. This project was designed on the basis of two principles which maximised consultation with the profession.

i. A need for full understanding cooperation and participation by practitioners in the project;

ii. A need for a representative steering committee which participated fully in the research and formulating recommendations.
In practice this has meant the involvement of most major hospitals in most States, the training of nurse observers, observations undertaken by nurses, discussions of results with the observers, and only then collation by the research team. In addition, workshops were held in each State where modifications to the drafts occurred and assessment instruments were discussed. There have not been major changes to the competencies developed by ANRAC as a result of the research project.

**Pharmacy**

The Pharmacy profession has ensured a broad consultative base in the broad constituency represented in its steering group. Each of the groups represented in that group will have its own mechanisms for further communications with members of the profession. The timetable of the proposed Pharmacy project takes into account both widespread consultation and central aggregation of the results of that consultation.

**Social Work/Social Welfare**

As mentioned in Step 2, the size and disparate nature of these professions makes it imperative that there is widespread consultation with all its branches. To accomplish this three strategies have been suggested:

- A series of workshops at the national conference which will enable individuals to review and draft competencies.

- A publicity exercise to involve as many members of the profession as possible.

- Structured meetings with interest groups to refine draft competencies and check to see that all sections of the profession have been adequately addressed.
Veterinary Science

As outlined earlier in Step 2, a number of techniques were used to consult the profession: Delphi surveys, the Professional Newsletter and the National Conference of the Association. A key feature of this project was the mechanism for widespread communication already available to the profession through its Association. The AVA represents all interests in the profession at State and National levels and it has a well organised system of communications with its members, including a national conference and many State and divisional meetings.

The wide representation and good communications network provided by the AVA, has facilitated all aspects of the project. It would have been difficult and expensive to consult as broadly and effectively in such a widely dispersed profession without the infrastructure of the professional Association.

Professions that do not enjoy such a well established means for communication should ensure that an equivalent mechanism is implemented (as is proposed in e.g. Pharmacy and has been done in other projects). Failure to do so will inevitably lead to difficulties with a major aim of development of Competency Standards: widespread national endorsement from all of the key players the profession.

6.3 Conclusion

This Chapter summarises a variety of approaches to development of Competency Standards. The examples included here each illustrate important features of the process that should be considered by other professions as they tailor an approach suited to their particular needs. The next Chapter explores a number of key issues that will be encountered by all professions as they develop Competency Standards.
7. ISSUES OF SPECIAL INTEREST TO THE PROFESSIONS

7.1 Introduction

The aim of this Chapter is to raise some key issues that are of importance to all professions, many of which have been foreshadowed in earlier Chapters. Examples are again chosen to illustrate general points, irrespective of the profession from which the particular examples are drawn. Readers are encouraged to address all of the examples, even if the profession from which a particular example is drawn may, at first sight, appear to have little in common with their own.

7.2 The Nature and Structure of the Profession

7.2.1 The Purpose of the Profession

It is helpful to develop Standards within a framework founded on an appreciation of the overall purpose of the profession; its "mission statement" as it were. This is a key step in Functional Analysis and useful in all approaches. It also guides identification of the major sub-purposes within the profession that should be reflected in Units of Competency.

A statement of Occupational Purpose has an important role in guiding thinking about the profession. An appropriate statement may already exist. If not, one can be developed fairly easily. This step is significant; it provides the foundation of the Competency project. Consensus on at least the "core" of the statement of purpose should be achieved before proceeding to development of Standards. If there is an impasse over the core of the profession's work, it does not auger well for future work. Some examples follow.

"The veterinary profession provides veterinary care and expertise in veterinary science to animals and the community in Australia and its Territories".
"Occupational Therapists practise and develop the science and art of Occupational Therapy in Australia, and ensure its ongoing relevance and contribution to consumers and society".

"The profession of dietetics contributes to the promotion of health and the prevention and treatment of illness by optimising the nutrition of communities and individuals. It utilises scientific principles and methods in the study of nutrition and applies these results to influence the wider environment affecting food intake and eating behaviour".

When viewed together, these statements draw attention to the context in which the professions work, the scientific and other aspects of the profession and the concept of professional development. These aspects of a profession are important and may be overlooked in Standards, without such guiding statements. A statement of purpose, no matter how brief, is likely to be better than nothing. The statement can and should be revised during the iterative processes of developing the Standards.

On the other hand, while this step is important, it should not be allowed to take too much time initially. Provided consensus on the major thrust of the statement has been achieved, it can be refined later. If too many details are addressed at the outset, the process may become bogged down quibbling over details. Some cynics may regard this phase as time wasted in development of worthless "motherhood" statements and lose interest in the major thrust of the project. This attitude will be reinforced if too much time is spent before the value of the statement becomes obvious. Others may simply come to regard the whole task as too hard.

To strike a balance in this phase of a project is one of the important roles of the steering group.
7.2.2 The Overall Competency of the Profession

An important early step in developing Competency-Based Standards is to gain an appreciation of the Competency of the profession as a whole. It is all too easy to concentrate on a particular segment (e.g. the Entry Level) and, in so doing, overlook other major aspects of the profession's Competency.

An initial overview is crucial to Functional Analysis and it is of value in all techniques for establishing Standards. Even if it is intended to produce detailed Standards for only one part of a profession in the first instance, those Standards should still be placed in the context of the Competency of the profession as a whole. Professions should note that the major current initiative is concerned with the Entry Level, which should receive due emphasis.

An overview encourages a view of the profession beyond the behaviour of individuals within it. It is of course necessary to develop Standards that reflect the performance of individuals, specially for the purpose of registration to practise, but this should not preclude a view of the overall profession as well. Like a statement of overall purpose, an appreciation of overall Competency will highlight contextual factors. Although these projects are ultimately concerned with development of Standards for the Entry Level of the professions, an exclusive focus on the behaviour of individuals at the Entry Level will almost certainly result in a focus in the Standards that is too narrow.

The following example drawn from the Standards from Veterinary Science illustrates a conceptual Competency framework developed for that profession. It is generally applicable to other professions. Its purpose is to guide an early recognition of all of the Branches and Levels of a profession and to highlight the need to consider contextual factors associated with each of those divisions (which can be reflected in Range Indicators).
This diagram is intended to portray the Competency of the profession as a whole. The Competency framework (begin with the part enclosed by double lines) consists of three vertical "branches" and three horizontal "levels" (both arbitrarily set at three for the purposes of illustration). A Range Indicator (RI; discussed below) is attached to each vertical branch (see top of figure) and each horizontal level (right side of figure) of the profession. A unique combination of a branch and level is called a Sector of the profession's Competency in this framework (an example is
highlighted by heavy lines in the centre). Each Sector may also include its unique Sector Range Indicator [SRI].

The column on the left of the Figure shows the proposed Levels 7 & 8 associated with the professions in the Australian Competency Standards Framework. Level 7 corresponds to the Entry Level of the professions. The relationship between the proposed Levels 7 & 8 of the Australian Competency Standards Framework and the "levels" in this framework for the veterinary profession is presently uncertain, pending formal national recognition of levels above the Entry Level in the veterinary profession. This is likely to be true of all professions.

Other professions can use this framework to identify the Competency of the profession as a whole. The vertical branches focus attention on whether there are, or should be, identifiable branches in the profession e.g. there may be branching according to employer group (private/public); fields of work (e.g. retail, hospital and industrial pharmacists) or other recognised divisions. The Range Indicators associated with each branch focus attention on whether Performance Criteria for each branch should be accompanied by Range indicators appropriate to the context of the particular branch.

The "levels" in this professional framework draw attention to what "levels" actually exist in the profession (e.g. entry, experienced, advanced, expert etc.), and how these could be recognised in Competency Standards and related to the proposed Levels 7 & 8 of the Australian Standards Framework. For example, it may be useful to create "sub-levels" within a particular Branch, where Competency differs mainly by level of performance rather than scope of circumstances (e.g. pre-registration level vs registered level in the same Competencies at Entry Level). "Sub-levels" in branches may also incorporate essential/desirable Competencies or distinguish advanced performance from minimum registrable performance within a particular "level".
This framework was designed to be viewed both from the perspective of the profession as a whole, and from the perspective of individual veterinarians. When viewed from the perspective of the profession, the overall Competency of the profession is represented by the sum of all of the branches and levels (i.e. the area enclosed by double lines).

Each smaller "box" within the overall framework (enclosed by dotted lines) represents a particular combination of branch and level to be known as a Sector of the profession's overall Competency, an example of which is highlighted by heavy lines in the centre of the diagram. Each Sector of Competency in this framework would consist of the Unit(s) of Competency, Elements of Competency and Performance Criteria appropriate to that Sector, together with Range indicators if appropriate to differentiate particular contexts (as discussed in Chapter 5).

The framework helps to distinguish the Competencies that are common to the profession as whole while distinguishing those that are peculiar to a particular part of the profession (e.g. occupation, enterprise or industry). In the case of the veterinary profession, the Competency of individuals has been divided into two components. The first is a broad component of professional competence that would underlie professional work in any Sector of the profession (i.e. within the area bounded by double lines in Figure 7.1) and would be shared by all registered veterinarians, irrespective of the particular Sector (or "level" or "branch") of the profession in which they normally work. The other component of individual competence is that associated solely with the particular Sector(s) in which the individual is registered to practise (e.g. Entry Level, Specialist etc.).

Although the Australian Competency projects are primarily concerned with the Entry Level of the professions, this overall analysis of the profession's "levels" and "branches" will pave the way for further developments of Competency Standards for other "levels", should the profession wish to do so. By using this approach, the Entry Level Competencies of the veterinary profession have been placed in an appropriate context. This approach has also identified the components of
professional Competency shared by all veterinarians, something an initial focus on the Entry Level would have failed to do.

The Competency framework incorporates an array of possible Range Indicators: associated with each Branch (Branch RI), Level (Level RI) and Sector (SRI) of Competency. These Range Indicators could be used wherever necessary to properly define the circumstances in which competent professional performance is required (e.g. the situations in which individual competence would be assessed for the purposes of registration to practise at Entry Level).

Differentiation of "branches" and "levels" in a profession could be based on professional function, individual roles, types of professional work, employment (e.g. public/private/industry) etc. as appropriate to the needs of the profession. Attention to these aspects of the profession's overall Competency, in the way proposed here, will provide a valuable foundation on which to develop Standards within the Australian Standards Framework & Format. Units of Competency will be highlighted, a need to differentiate Core/Industry/Sector Competencies etc. may be recognised and the potential for Range Indicators will be highlighted from the outset.

In using this framework professions should also consider the relationships of proposed branches/levels in the profession to areas of the workforce outside the boundaries of the profession's own framework, specially in relation to articulation with related occupations in similar branches of work at lower Levels of the Australian Standards Framework (i.e. Level 6 or below). To clarify and facilitate articulations is a major aim of the move to competency–based approaches.

To illustrate the application of this generic framework to analysis of the competency of a profession, Figure 7.1 has been modified to represent a practical framework for the profession of pharmacy (see Figure 7.2). It is to be emphasised that Figure 7.2 is entirely hypothetical and is not intended to pre-empt in any way how that profession may be analysed.
Figure 7.2. Hypothetical Competency framework for Pharmacy. See explanation below. (* RI = Range Indicator)

This diagram shows how the Pharmacy profession might recognise three branches of the profession (retail, hospital and industry) and three (registered) levels within each branch (entry, supervisor and manager).
By way of illustration, a pre-registration "sub-level" is identified within the Entry Level and distinguished from the registrable part of the Entry Level above. Branches are not recognised within this sub-level. Its competencies might represent the "core" competencies of the registered Entry Level. An alternative possibility is that the "sub-level" of the Entry Level might correspond to a lower level of the Australian Standards Framework e.g. Level 6, with which Level 7 would articulate. In either case a transition from one Level to the next would be associated with acquisition/demonstration of additional Competencies appropriate to registration.

Branches in the registered Entry Level would be differentiated by appropriate Range Indicators and, possibly, additional Competencies. Sectors of the profession could be further differentiated if desired e.g. a supervising pharmacist in industry, by including a Range Indicator for that Sector if necessary.

As has been done in the veterinary profession, here too the overall Competencies of all Pharmacists could be ascertained from the Competencies shared within the total area enclosed by double lines.

Analysis of the profession's overall Competency, like development of a Statement of Purpose, places Entry Level Competency Standards in an appropriate context. As indicated in relation to the purpose of the profession, an analysis of the profession's Competency should also not be allowed to take too much time.

A working consensus is all that is required to place Entry Level Standards on an appropriate footing. A broad concept of the Branches, contextual differences and possible sub-Levels of the Entry Level will be sufficient. It is not NOOSR's responsibility to support the development of a full range of Competency Standards for the entire profession, although the profession may well wish to do so in due course.
7.3 *Models of Occupational Performance*

Competency Standards are concerned with professional performance in the workplace. In developing Competency Standards it is useful to develop a model of the performance of individual members of the profession within the context of the profession as a whole. An example of a model of professional performance developed for the veterinary profession is given below.

![Diagram of professional performance model]

Figure 7.3. Model of professional performance for individual veterinarians. (Follow path lines down page). This model of professional performance has been called an "Analysis – Provision" Model of the professional performance of individual veterinarians.
The model of professional performance begins (top centre, #1), in response to demand from the community for veterinary care and/or expertise, with an analysis of the particular situation in terms of the veterinary input likely to be required. This leads to a desired outcome (bottom centre) through a variety of possible paths (#1–8).

The initial options to provide veterinary input are either some form of joint (interdependent) action (path #2: leading to collaboration and/or referral) or individual (independent) action (path #3). Within the framework of individual actions (paths #3 – #6 on the left of the Figure) veterinary input will typically be provided through existing personal abilities within the scope of the usual registrable Competency of the Sector of the profession in which the individual works (path #4).

The possibility that individuals may have abilities beyond the scope of the minimum registrable Competency of a particular Sector of the profession in which they work is catered for in path #5 (e.g. a highly experienced practitioner or one with special interests). Another possibility is that provision of appropriate input may require development of additional abilities by the individual concerned (path #6), either in the short term or longer term. This path underlies adaptability in the short term and continuing professional development in the longer term, both of which are important areas of professional competence in the general area of transferability of professional capacities to different settings.

The overview provided by such a model still focuses on the behaviour of individuals at Entry Level (e.g. for registration) but it also recognises their interactions with other members of the profession in delivery of professional services (i.e. interdependence vs independence in professional work). Interdependence in
joint activity is highly organised and structured in some professions (e.g. medicine) but may be less well recognised in others.

The ability to work with other members of the profession, or with other professions, is a key area of professional competence in the workplace that should not be overlooked in Competency Standards. An overall picture of the way the professions deliver their service to the community will not only foster the development of Competency Standards, it will also aid communication between the profession and the community it serves. In the context of development of Competency Standards, such a model facilitates an overview of professional performance and leads to a natural evolution of Units and Elements of Competency corresponding to the paths and boxes in the model.

The Competencies initially derived from the model for the veterinary profession are set out below. They are numbered according to the pathways of the model to which they correspond. (The translation of these into Units & Elements for the Entry Level is still under review)

1. Analyse the requirements of situations and determine how to provide/obtain appropriate veterinary input.

2. Consult, collaborate or refer as necessary to provide/obtain the required input.

3/4. Provide the required veterinary input individually within the scope of the registrable Competences of the Sector of the profession concerned.

5. Provide the required input by utilising a wider range of abilities, beyond the registrable Competences specified for the Sector concerned.
6. Develop new abilities, or transfer existing abilities to new contexts, as necessary to provide required veterinary inputs.

This model has undergone considerable further development which is beyond the immediate scope of this Guide and will not be discussed. The discussion above should be sufficient to illustrate the value and application of a model of professional performance to other professions.

7.4 Task Analysis vs Higher-Order Skills Analysis

As discussed in Chapter 4 and in NOOSR Research Paper No. 1, there are three major different ways of thinking about professional competence; a focus on attributes, a focus on performance and a combined (integrated) focus on both attributes and performance.

As already indicated in that earlier discussion, there can be a tendency in performance-orientated approaches to focus predominantly on individual tasks and routine aspects of performance. Some early overseas work on Competency Standards fell into this trap. Some (uninformed) critics continue to make this criticism of Competency Standards in the mistaken belief that they continue to be task-orientated and ignore higher-order skills.

The NTB has given clear guidelines in this respect (National Competency Standards Policy & Guidelines; NTB, 1991). In giving advice on analysing an occupation, the NTB recommends the analysis recognise a hierarchy of aspects of performance including the following:

- the requirement to deal with the responsibilities and expectations of the work environment (job/role environment skills);
- the requirement to respond to irregularities and breakdowns in routine (contingency management skills);
the requirement to manage a number of different tasks within a job (task management skills);

the requirement to perform individual tasks (task skills).

These recommendations are clear. They, like earlier discussions in this Guide (Chapter 3–6) and the NOOSR Research Paper series, leave no doubt that professions should not concentrate on tasks alone. In general, a focus on individual tasks is likely to be inappropriate, however there may be some critical tasks that are considered essential (e.g. for registration) that professions may wish to recognise in Standards. On no account should professions become involved in attempting to list all of the individual tasks associated with professional work in their Competency Standards, no matter how much attention may have been given to those tasks during development of the Standards.

Most Elements of Competency are likely to be written at the level of Task Management (planning, organising, prioritising and executing clusters and series of related and interrelated tasks in the professional environment), or at higher levels in the hierarchy of occupational analysis e.g.

"Recognise the need for anaesthesia and implement effective techniques" (Veterinary Science);

"Conduct needs analysis and literacy audits as appropriate" (Adult Basic Education);

"Effectively manages the nursing care of individuals or groups" (Nursing);

"Evaluates progress toward expected outcomes and reviews plans in accordance with evaluation data" (Nursing).
It is sometimes difficult to decide how far to disaggregate a profession into its component Elements of Competency. It is important not to end up with a long list of tasks. On the other hand the Elements of Competency must not be abstract or unobservable (and unassessable) in the workplace. NOOSR Research Paper No. 1 (1990; p43) offers the following advice in relation to a medical example.

'The "stop rule" for ceasing analysis into smaller and smaller Elements is when you are sure that informed persons reading the description have the same understanding of what carrying out that activity would be. For example "to maintain patient health" is a competency required of doctors (and other health professions). This presents a confused picture to the mind and must therefore be broken down further. On the other hand "read an ECG" presents a clear picture and need not be broken down further".

(Note that "read" in this context is not a simple task – it requires an extensive knowledge base, interpretive and analytical capacities etc., although these attributes need not be stated in the Competency).

In an actual Standard, it might be preferable to avoid "read an ECG" in favour of a more general Element of Competency such as "Employ and interpret the results from diagnostic equipment". ECG's and other equipment could be specified in a Range Indicator, which could be amended from time to time as technology changes, without necessarily changing the Element of Competency to which the Indicator relates.

7.5 Pitfalls of Attribute-Based Approaches

As already emphasised, development of Competency Standards should consider the attributes that underlie successful performance and how those attributes might be expressed in performance in the workplace.

From time to time some authors have attempted to identify lists of key attributes that are believed to underlie competent performance in isolation from the context in
which those attributes would be expressed i.e. the workplace. A myriad of attributes have been identified in relation to competence in management for instance. These include visioning, motivating, personal impact, self-confidence, tenacity, calculated risk-taking, self control, stress tolerance; to name but a few.

There is little doubt that these and many other attributes are shared by successful professionals. It is useful to consider them all. However, in the context of Competency Standards, the key task is to determine how those attributes will be expressed in the workplace. The principle danger in incorporating attributes per se in Competency Standards, specially the type of attributes listed above, is that some attributes will prove extremely difficult, if not impossible, to assess. The same can be said of most attributes including empathy, caring etc.. Some attributes may be more easily assessable, but there is still no certainty that they would translate into successful performance in the workplace.

Professions should consider important attributes, but ways should be found to express their contribution to competent performance in the workplace in a way that will lead to an observable manifestation in actual professional work, which can be assessed validly. Standards aim to facilitate recognition of competence in the workplace and should be written accordingly.

For instance, if "initiative" was considered to be an important aspect of professional competence, a statement such as "Has Initiative" is not an appropriate Element of Competency. At the very least, the Element might be "Demonstrates Initiative" (an active form). This unqualified statement simply raises problems for assessment with questions such as when, how etc.. It would e.g. be better to write ".......(certain actions).. are initiated in response ...(contextual stimuli)...." and supplement this with a Range Indicator if appropriate.
The thinking involved in this exercise should eventually lead the profession to identification of an aspect(s) of performance in which it is clear that initiative is required to be competent. This avoids the difficulties referred to above of trying to specify that attribute per se. Expression of an identified attribute through performance in the workplace is the preferred form for Competency Standards. As indicated earlier, the profession should not try to avoid these complex issues by simply taking refuge in the routine aspects of professional work, specially routine tasks.

Despite certain difficulties with attribute-based approaches, it is clear that competent professionals share many attributes, irrespective of the profession in which they work. There is an obvious opportunity for different professions to exchange views in this respect and consider how the expression of shared attributes may differ in the workplace, e.g. practitioners in many of the caring professions engage in activities such as counselling and negotiation; all professionals are required to communicate effectively and solve problems; etc. Clearly the type of counselling skills and range of contexts in which they are applied by (say) a teacher differ somewhat from those of (say) a social worker. But what is the relation between the two? Some aspects are shared.

Professions can usefully compare notes on their understandings of generic attributes. Competency Standards promise to clarify the various questions raised by the phenomenon of generic attributes by attaching them to a context in a way that is recognisable in the workplace. There can be no doubt that e.g. Doctors, Dentists and Veterinarians share many similar attributes (as reflected in University curricula). Most members of the community, in seeking professional services, would nonetheless accept that the differences in expression of those shared attributes in the professional workplace are highly relevant.

7.6 Core/Industry & Essential/Desirable Competencies

Within some professions the variety of roles (or segments) may be such that it will be useful to establish a set of core competencies that are common to all roles (or
segments) together with other competencies that are specific to the various roles (or segments) (see Section 7.2.2; Figures 7.1 & 7.2). This implies, of course, that transfer to a different role (or segment) is contingent upon acquiring the requisite extra competencies.

For example, the Pharmacy profession is addressing this issue in relation to community pharmacists, hospital pharmacists and industrial pharmacists. Besides the core set of competencies, each role has its own specific competencies. Teaching is another profession that may usefully be seen in this way. It seems likely that there will be some core competencies common to all teaching. Equally, it seems certain that teaching (say) welding to apprentices will require some competencies that are not required in (say) infant school teaching, though the latter will no doubt require its own specific competencies.

The myth that Entry–Level Competency Standards, by prescribing minimum standards, thereby discourage excellence and reduce everything to the lowest common denominator was refuted earlier. It was also pointed out that standards typically relate to tasks that admit of many degrees of performance. All of this suggests the possibility that for Entry–Level (and also perhaps at higher levels), it may be useful in many cases to distinguish essential and desirable competencies. So, e.g., it may prove useful in some cases to identify essential competencies that must be demonstrated for entry, together with other desirable competencies, which may be required to be demonstrated (say) one year later. The relevance of this proposition to Entry–Level Standards will need to be resolved for particular professions.

The framework for analysing the Competency of a profession given in Section 7.2.2 above provides a starting point for professions to deal with these issues.
7.7 Access, Equity and Opportunity

It is important for professions to draft their Standards in a way that does not disadvantage particular groups or interfere with changing opportunities in the workplace. The NTB has produced a comprehensive guide to elimination of gender bias (Eliminating Gender Bias in the Development of National Competency Standards; An Addendum to the National Competency Standards policy & Guidelines; NTB 1991) which should be consulted by steering groups and others.

The work of NOOSR in developing Competency Standards is also concerned with equitable treatment of professionals from overseas; Standards should be written without cultural or linguistic bias. The NTB guide also gives valuable practical assistance in this respect.

7.8 Involvement of Industrial Parties

Competency Standards are concerned with performance in the workplace and as such have an impact on a number of industrial parties who have an interest in workplace practices. There should be representation of those parties in steering groups (as specified in NOOSR Guidelines) and continuing consultation should be maintained. The number of professionals who are working under industrial agreements/awards is quite high, possibly surprisingly so to many professionals.

7.9 Expression of Standards in "Output" Terms

It is often suggested, if not consistently, that Standards (Competencies and their associated Performance Criteria) should be expressed in "output" terms, as distinct from "input terms". This suggestion warrants clarification by way of an example.

The example chosen here is deliberately simplified to avoid confusion at the outset. Further complexities are dealt with once the distinction between "input" and "output" has been clarified. An example related to radiography is used because many professionals are likely to have had some personal contact with this area and have some appreciation of the workplace. This particular example is used only as a
vehicle to illustrate some points, it is not intended to refer specifically to the competencies required in radiography or radiology.

**Suppose** an Element of Competency were written as follows:--

"Operate an X-Ray Machine".

The meaning of this statement is perfectly clear. It could, with the aid of associated Performance Criteria, constitute a Competency Standard, albeit a highly task-orientated one. Such an Element of Competency would be called an "Input" statement because it reflects the input (of the operator in this case) to the process of producing X-ray images.

An alternative "output" form could be:--

"Images are produced on X-ray films".

This statement reflects (one) of the outputs of the process. Many have argued that all Standards should be expressed in this way. An advantage of that expression is that it could refer to an individual, a department or a profession. This would be useful in mapping the aggregate output of an organisation or occupation.

However, if an "output" statement was sought, the example above could be improved further as follows:--

"Diagnostic Images are produced".

This is not only applicable beyond the level of the individual, it is independent of technology. Performance Criteria would in all probability be concerned with features of the output, e.g. the diagnostic quality of the X-Ray image, rather than the process by which that output was produced e.g. positioning the patient, choice of film etc.. In this case the Performance Criteria would ideally be accompanied by
a Range Indicator referring to X-Rays, ultrasound, NMR, image intensification, CT, video-enhancement etc., so that the Standard itself was general and largely independent of technology.

An advantage of a general output statement supported by specific Range Indicators is that future changes to technology could be incorporated in new Range Indicators without necessarily changing the Element of Competency to which they refer. This point has already been raised; Range Indicators are likely to have a shorter life without review than the Standards to which they relate. Professions should consider the value of this approach in their particular context.

The potential advantages of an output approach are obvious, at least in the case of some industries where a clearly defined output results from competent performance in the workplace. It is to be (cautiously) encouraged for the professions, but it is not necessarily well suited to some aspects of professional work. Professions will need to consider the issue carefully. Output-orientated Standards can appear somewhat abstract to practitioners in the workplace who are often, of necessity, concerned very much with inputs to processes. It is also imperative that Standards provide a suitable vehicle for registration of individuals. Some output expressions tend to become increasingly abstract and reflect little of individual performance.

Possibly the most difficult aspect for many professions is that a clearly defined output of a substantial amount of professional work is not always available, or at least not readily observable. In this case the Standards may need to address the features of the process and its inputs that are observable and assessable. In so doing, the Standards will also need to recognise that there may be a number of legitimate ways in which a desired outcome may be achieved or the process conducted. Consider e.g. the alternative pathways in the model of professional performance discussed in Section 7.3 (Figure 7.3).

In the X-ray situation discussed above, the competence of the operator is not necessarily reflected in the output. A good image, although essential, may still
provide insufficient evidence of competence. Questions of whether it was a routine case or an unusually challenging situation arise. Standards should take both of these possibilities into account. In this example competent performance in the actual process of using an X-Ray machine is also a matter of considerable significance; it involves the safety of patients, operators, bystanders and even the unconceived and the unborn. Safe or unsafe use of X-radiation will not necessarily be reflected in the immediate output of a good image. Standards concerning the production of diagnostic images must cater for this aspect of the process as well.

This radiographic analogy can be sustained further to explore other issues related to Standards, particularly the role of a statement of occupational purpose. The simple example "Operate an X-ray machine" chosen earlier would not in fact represent a satisfactory Element of Competency for professions. It is highly task-orientated and, at least by implication, suggests a routine aspect of the workplace i.e. "pressing the button", as though it were in isolation from the many other related aspects of performance and ability that lead to quality diagnostic images such as positioning, choice of film etc..

Consider, for example, the impact on this "Element" of a statement of Occupational Purpose. If the purpose of the occupation were "To Produce X-rays", then "Operate an X-ray machine" may constitute an appropriate Element of Competency. However, if the statement of purpose were something like "To provide and maintain a quality, up-to-date and safe diagnostic imaging service to the health professions", as would be more appropriate to today's professional environment, it is unlikely that operating a single piece of equipment would assume paramount importance in thinking about the competencies of the workplace.

Attention would naturally be directed to versatility with a number of technologies, an ability to remain up to date, a capacity to select the right approach, an ability to exercise judgement, relate to patients and others in the workplace, articulate with other parts of the health professions etc.. Such a statement also focuses attention
on a broader range of attributes required in the workplace at the level of environmental management (e.g. radiation safety), contingency management and task management, all of which contribute to the stated occupational purpose.

This issue cannot be developed fully in a Guide such as this. Like Competencies and Performance Criteria, the focus of professional Standards will be highly contextual. Professions will need to find their own solutions. Nevertheless it is to be hoped that the example discussed here will highlight the distinction between the input/output approaches to Standards and illustrate the benefits of a statement of purpose. Professions have already developed a variety of innovative approaches to Standards. Further developments can be expected in this area, specially if the professions learn from each other.

7.10 Assessment Against Competency Standards

This Guide is concerned with development of Competency Standards. It is not directly concerned with assessment of competence, although the advent of Competency Standards is intended to lead to assessment of competence in relation to those Standards.

Ultimately members of professions will need to make judgements about whether individuals seeking to enter the profession are competent to do so. In a competency-based system, they do so by assessment of individuals against the Criteria described in the Competency Standards.

This raises a number of important questions which will be dealt with only briefly here. An overriding point is that Standards need to be assessable in a cost effective and reliable fashion. For a more detailed analysis of reliability, validity and other issues related to methods of assessment, see NOOSR Research Paper No.2.
Three more general questions are pertinent to the present context.

- How does the profession ensure that the Performance Criteria are adequate and what is the minimum standard?
- How is this assessment to be undertaken?
- Who will undertake the assessment?

The first of these questions involves the issue of validation of the Performance Criteria. Is it important to keep in mind here that there may be no absolute level of performance in many areas of professional competence. This is a problem with the "output-orientated" approach discussed above. Thus difficult decisions need to be made about what is the minimum level of performance. These will always be matters of judgment. It is important that these Performance Criteria are subjected to widespread scrutiny and are updated often to take into account changing circumstances.

The second and third questions involve the important issues of how the assessment is to be undertaken and who is to undertake it. While the assessment realities should not determine the nature of the standards, it is important to keep these realities in mind when determining Performance Criteria. Questions such as: who will use the standards?; how much will they need to know about assessment techniques?; where will the assessment take place?; what combination of techniques will be used?; should all be considered.

For example in veterinary science or medicine, it may not be realistic to undertake workplace assessment, nor to use practitioners to do assessments. Assessment is more likely to be undertaken in simulated settings using professional educators. In other professions it may be possible to use a real life situation and practising professionals e.g. in assessing teachers. In the first case Performance Criteria must take into account the difficulties of undertaking workplace assessment, while the second need not.
Some professions have been exploring the use of "Cues" to the assessment process. Cues are detailed indicators of the sorts of things an assessor might expect to observe when an Element is being performed competently. Thus Cues provide examples of the kinds of things that constitute partial fulfilment of the Performance Criteria. They are examples only and don't exhaust the possibilities. With experience of using the Competency Standards, the profession may well expand and refine the Cues. This will be part of learning about the new ways of assessment that stem from a competency-based approach.

In thinking about competency-based assessment, it would be helpful for the professions to recognise that the following general points:–

− development of Performance Criteria/Cues will be an iterative process based on discussion and experience of using the Standards, perfection should not be expected in a first draft;

− competency-based assessment is likely to be different from existing methods used by most professions, advice such as that contained in NOOSR Research Papers Nos. 1 & 2 should be sought;

− although competency-based assessment is likely to be different, methods can be appropriate without being excessively complex;

− the judgement of competent members of the professions is likely to play an important role in the assessment process; and

− the advent of explicit Competencies and Performance Criteria are likely to represent a considerable improvement to the assessment process, for both assessors and candidates.
7.11 Conclusion

This Chapter has highlighted some major issues associated with the development of Competency Standards. It paints a broad picture of some of the complexities of adapting Competency Standards to the professions. The solutions and/or pointers offered here reflect considerable recent innovation by the professions in seeking to capture the complexity of professional work in Competency Standards.

In some respects it is still only possible to raise issues rather than provide generally applicable solutions. As has been indicated throughout this document, contextual factors will remain of paramount importance. Nevertheless the professions have already learnt a great deal about the process and can look forward to considerable progress in the future.

Professions should begin by developing a core statement of occupational purpose and have an understanding of the overall Competency framework of the profession in which Competency Standards for the Entry Level will be developed. A model of occupational performance will guide thinking about the possible ways to achieve a desired outcome. Standards should normally be written at the level of task management or higher. Key attributes should be recognised but expressed in Standards in terms of performance in the workplace. The role of industrial parties should be recognised and consultation maintained. Standards should be free of bias. The impact of Standards on the assessment process should also be considered.

The following Chapter summarises the key steps in development of Standards and lists some of the major issues to receive attention at each step.
8. **SUMMARY OF KEY STEPS AND ASSOCIATED ISSUES**

8.1 *Introduction*

The aim of this Chapter is to summarise the key steps in developing Standards. It is derived from the material contained in the remainder of the document. Each step suggests a series of important aspects/issues to be addressed by a profession embarking on the development of Competency Standards.

8.2 *Get Started*

- Get early advice from NOOSR
- Acquire Guidelines and other relevant literature (mailing lists)
- Study literature, specially NOOSR Research Paper Series
- Determine the feeling and interest of the profession
- Identify how Competency Standards are likely to be used
- Estimate the resources of the profession (funds, time, associations)
- Identify major stakeholders
- Note any previous work in related areas or professions
- Identify and notify major stakeholders

8.3 *Clarify the Nature of the Profession*

- Identify its size and dispersion nationally
- Locate "mission statement" if any
- Identify the purposes of the profession
- Identify representative bodies/associations
- Determine who regulates the profession?
- Identify the nature of current standards/assessment
- Identify Branches/Levels/Core groups/Specialists etc.
- Examine articulations with other occupations
- Identify existing key groups and channels of communication
- Identify educational providers to profession
8.4 **Form a Steering Group**
- Observe Guidelines and discuss issues with NOOSR
- Achieve widespread National representation
- Involve appropriate industrial parties
- Involve educators
- Develop channels of communication
- Allow time for clarification/negotiation
- Determine costs
- Examine likely impact of Competency Standards
- Do not seek support from NOOSR until there is a committed group

8.5 **Choose Techniques**
- Examine existing information
- Conduct research
- Determine needs for expert input
- Re-read this Guide and the NOOSR Research Papers
- Consider employment of a consultant
- Consider impact on assessment
- Aim for a technique based on an integrated approach, consistent with the Steps presented in this Guide

8.6 **Seek Funding from NOOSR**
- Ensure the guidelines for a steering group have been met
- Have an agreed "core" statement of occupational purpose
- Know the techniques, or likely techniques to be used
- Identify the role of consultants, if any
- Have a flow chart for the project with a reasonable time frame
- Identify channels for effective communication
- Align project with existing opportunities for communication (national meetings, conferences etc.)
8.7 Apply Techniques
- Observe the Flow Plan
- Adopt a feasible time frame
- Include a model of professional performance
- Allow time for consultation, but not too long
- Recognise the iterative nature of the work
- Avoid bias in the Standards

8.8 Continue Consultation
- Maintain channels and develop new contacts as the project broadens
- Maintain publicity and momentum
- Use Journals, Newsletters, conferences etc.

8.9 Gain National Endorsement
- Do not lose sight of this aim; if the earlier steps are followed, this step should be smooth

8.10 Consider Assessment
- Consider who will do it and the resources required
- Seek expert input
- Identify training needs
- Plan trials/validation processes
- Manage the transition
- Maintain relationships with educators and registering authorities

8.11 Develop Assessment Instruments
- Determine need for expert input
- Consider validity and reliability
- Identify training needs for assessors
- Educate profession about new approach
8.12 Establish a Mechanism for Periodic Review

- Consider timeframe
- Identify how review will be undertaken

Notes:
<table>
<thead>
<tr>
<th><strong>Articulation</strong></th>
<th>The formal linkage between different fields or levels.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessment</strong></td>
<td>Assessment of performance against Competency Standards.</td>
</tr>
<tr>
<td><strong>Attributes</strong></td>
<td>The knowledge, skills and attitudes that together underlie competent professional performance.</td>
</tr>
<tr>
<td><strong>Competence</strong></td>
<td>A construct referring to all of the personal characteristics that together enable competent performance.</td>
</tr>
<tr>
<td><strong>Competency</strong></td>
<td>The ability to perform the activities within an occupation or function to the standard expected in employment.</td>
</tr>
<tr>
<td><strong>Competency Standards</strong></td>
<td>A combination of Units of Competency, Elements of Competency, Performance Criteria and (optional) Range Indicators.</td>
</tr>
<tr>
<td><strong>Competent</strong></td>
<td>Possessing the attributes necessary to perform a job to appropriate Standards.</td>
</tr>
<tr>
<td><strong>Element of Competency</strong></td>
<td>A subdivision of a Unit of Competency that is observable in the workplace.</td>
</tr>
<tr>
<td><strong>Performance</strong></td>
<td>What professionals do in the workplace.</td>
</tr>
<tr>
<td><strong>Performance Criteria</strong></td>
<td>An integrated list of the aspects of professional performance that would be regarded as evidence of competent professional performance in the workplace in an Element of Competency.</td>
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<td>--------------------------</td>
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</tr>
<tr>
<td><strong>Range Indicator</strong></td>
<td>A statement of the circumstances in which Performance Criteria apply.</td>
</tr>
<tr>
<td><strong>Role</strong></td>
<td>A distinct area of practice within a profession</td>
</tr>
<tr>
<td><strong>Unit of Competency</strong></td>
<td>A major segment of the overall Competency of a profession, typically representing a major function or role of the profession.</td>
</tr>
<tr>
<td><strong>Workplace</strong></td>
<td>The actual environment(s) in which professionals work, which may be simulated for purposes of assessment.</td>
</tr>
</tbody>
</table>
10. **KEY REFERENCES**

*For material concerning particular professions, consult NOOSR in the first instance. Steering Groups should ensure they are on the mailing lists of NOOSR and the NTB.*


ANRAC List of Competencies. ANRAC (1988).


NTB Network No. 3. 1991 National Training Board, Canberra. (See also No. 1 & 2 and look to future issues)
OTHER NOOSR PUBLICATIONS

RESEARCH SERIES

Research Paper No. 1: Establishing Competency-based Standards in the Professions

Research Paper No. 2: Competency-based Assessment in the Professions

Research Paper No. 3: Studies in Comparative Education: The Philippines

Research Paper No. 4: The Identification and Assessment of Competencies: The Nursing Project and its Implications

Research Paper No. 5: Studies in Comparative Education: The People's Republic of China

Research Paper No. 6: Combining Research Methodologies to Develop Competency-based Standards for Dietitians: A Case Study for the Professions

REFERENCES


Country Education Profiles

Skills Recognition in Australia Volume 1—Professional and Technical

Skills Recognition in Australia Volume 2—Trades and Related Occupations