



Autoriteti Kombëtar i Kualifikimeve
Nacionalni Autoritet za Kualifikacije
National Qualification Authority

DEVELOPING AND VERIFYING **OCCUPATIONAL STANDARDS**



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OVERVIEW OF VET CHANGES

All of us live times of changes. In order to adapt to the inevitable development of life, organizations, public or private ones, need to respond quickly and effectively to social, technological, economic and politic change.

The competitiveness among companies is given not only by the new and high technology but rather by the competence of personnel.

The world of school is not a standalone system. It exists, functions and develops in relationship with world of work, with industry in fact. The final product of the school – trained individual – is an input for a company providing goods and services, and the more competent the individual is, the higher will be the quality of products and services provided by the company. In order to allow this to happen, the company must tell the school what its expectations are vis-à-vis the competence of the graduates, being them youngsters in initial education, or adults seeking for acquiring new skills or upgrading the existing ones.

Competence

At the core of VET system stays the concept of competence. Competence means the ability to use knowledge, skills and attitudes in order to perform work activities and to achieve expected results.

The ETF Glossary of Labour Market Terms and Standard and Curriculum Development Terms, (ETF 1997) gives three definitions of the noun competence:

1. the ability to do something well and effective
2. the ability to meet the requirements of employment
3. the ability to meet the demands of specific work roles

All definitions deal with work. To be competent means to give work results. In two words competence comprises knowing and doing. The outcome of the two must be the expected result at work, being it product or service. Therefore the concept focuses on what is expected from a worker rather than on the learning process.

Competence includes all aspects of work performance, not only the ability to perform tasks and accomplish duties:

- Ability to perform regular tasks of one occupation (task skills)
- Ability to deal with a combination of these tasks and performing them at the expected level of performance (task management skills)
- Ability to deal with unexpected situations which might occur while working (contingency management skills)
- Capacity to integrate your tasks in the work environment (job/role environment skills)

Task skills deal with the requirement of performing job specific tasks in accordance with agreed methods and procedures.

Examples

Joint timber elements in accordance with construction specifications defined in the blueprints. (from the occupational standard of carpenter)

Provide tourist information to clients (from occupational standard of concierge)

Task management skills represent to manage a number of different tasks. The component captures the ability of an individual to integrate a number of potentially different tasks to achieve a complete outcome.

Examples

Plan own activities in order to meet deadlines (from almost any occupational standard)

Select appropriate materials for meeting the requirement of quality standards (from any occupational standard dealing with production of goods)

Contingency management skills mean the requirement to respond to unexpected situations. It is also the ability to manage non-routine tasks

Examples

Give appropriate first aid with care for integrity of the injured person (from almost any occupational standard dealing with health and safety)

Assess the situation and disconnect the machine in case of break down of energy supply (from industry operator occupational standard)

Job environment skills represent the requirement to deal with responsibilities and expectations of work environment. This requirement refers to working in team, interacting with clients, colleagues, hierarchical positions, communicating effectively with others.

Examples

Address the problem to appropriate personnel in case of breaking down of energy supply (from any occupational standard in industry)

Approach appropriately the requirements of difficult clients (from banking field)

GENERAL PRESENTATION OF OCCUPATIONAL STANDARDS AND TRAINING STANDARDS

OCCUPATIONAL STANDARDS

Occupational standards are statements of work performance reflecting the ability to successfully complete the functions required in an occupations, as well as the application of knowledge, skills and understanding in an occupation.

Occupational standards are defined in terms of **activities performed** by a person in a given occupation whereas education and training standards are developed from the activities defined in occupational standards, and they include **learning outcomes and learning activities** which ensure that the necessary skills and knowledge are developed by a person to enable him or her to perform at an agreed level in an occupation.

The development of a common format for occupational standards enables the promotion of national consistency and help to ensure that standards are easily understood by various users, i.e. employers, HR managers, teachers/trainers, training planners and managers, individuals.

Formats differ between standards developers and between countries. The following list describes the common components of formats used in various countries:

Broad functions - referring to significant functions in an occupation.

Usually standards are built up of units of competence. A unit refers to a competence which, when applied in a work situation, can logically stand alone. It includes a title, expressed in outcomes terms, and a description which clarify the unit title and notes any relationship with other units from the same standard or from related ones. The unit of competence is the smallest part of a qualification which can be recognized with a separate certificate.

Examples

British standards for welder

Unit T/102/3947 – Unit 22 – Cutting sheet metal to shape using hand and machine tool,
or

Unit –M/102/3932 – Unit 07 – Joining materials by the manual gas welding process..

Australian standard for welder

(Unit RUAME5.15A) Weld using manual metal arc welding process (MMAW)

Key activities – represent relevant actions associated with performing the work of the function. Many standards associate key activities with elements of competence which represent the basic building blocks of the unit and continue the description of the key purpose of the unit itself. They describe, in outcomes terms, activities that a person who works in a particular area of work is able to perform. Elements describe actions or outcomes which are demonstrable and assessable. It is very important that in no case elements of a particular unit of competence **are not** lists of tasks associated to the function described in the unit.

Example

Unit – Weld using manual metal arc welding process (MMAW)

Elements – Prepare metal for welding
Select welding machine settings and electrodes
Identify distortion prevention measures
Weld materials by correct process up to quality described in related standard
Inspect welds
Correct faults

Performance statements are evaluative statements which specify what is to be assessed and the required level of performance. Performance statement (found in many standards as performance criteria) defines the benchmark of quality performance of the action described in the element of competence.

The benchmark refers either to the action itself or, more often, to the outcome of the action.

Example

Element – Prepare metals for welding
Performance criteria – Weld requirements identified from specifications and/or drawings
Material is correctly prepared using appropriate tools and techniques
Material assembled/aligned for specification where required

Context statement – Statement about context in which the performance is to be achieved. It might refer to the range of equipments or tools used to perform the function described by the unit, the places where the actions might take place. The context statement provides the user with the context of function, provides a link to knowledge and enterprise requirements, and assists users in providing a focus of assessment, and assist with updating standards as they are reviewed. The context statement (found in some standards as range of variables or range statement) relates to the unit of competence as a whole.

Example

Range statement -

- This work would be carried out using a range of materials for heavy or light fabrication
- The person would work autonomously or within a team environment using predetermined standards of quality, safety work and welding procedures and the skills applied to a range of fabrication activities
- Weld quality meets a standard up to AS1554 GP or equivalent
- Materials may include carbon steel or stainless steel, etc
- Preparation of materials may include pre-heating, set up of jigs, fixtures, clamps, etc
- Test procedures may include voltage drop, amperage setting, earthing, electrode and wire conductivity, electrode flux condition, etc

Evidence guide or assessment guide relates directly to performance statement and range statement. Its purpose is to guide assessment of the unit of competence either in the workplace and/or training program.

Basically the evidence guide direct the assessor to what to look for at a candidate in order to make sure that the candidate might be declared as being competent. The evidence guide usually refers to the following aspects:

- Critical aspects of evidence to be considered
Concurrent assessment and interdependence with other units of competence
- Underpinning knowledge
- Recommended method(s) of assessment
- Key competences associated to the unit of competence.

Education and training standards are developed from the activities defined in occupational standards. They include learning outcomes which describe what people will be able to do at the end of a learning program. They might also include learning objectives to ensure that the necessary skills and knowledge are developed by a person to enable him or her to function at an agreed level in an occupation.

While the **occupational standard** starts from employment outcomes and defines the competences required in an occupation, the **training standard** starts from the competence intended to be achieved, defines the learning outcomes, and contains other information like:

- Learning content related to learning outcomes, e.g. learning activities necessary to acquire skills and knowledge, teaching methods, etc.
- Assessment of achievement, e.g. assessment methods, expected evidence of achievement.
- Process requirements, e.g. responsibilities, duration of programs, acceptable or desirable learning location

OCCUPATIONAL ANALYSIS

Development of an occupational standard requires comprehensive, complete and accurate data on the skills, knowledge and competences necessary for a good performance. The information can be obtained through a process of analysing the occupation in a rational and structured manner. The occupational analysis is the most important stage in setting up an occupational standard.

There are different techniques for collecting data about an occupation, i.e. observation of work, interviews (individual or group ones), questionnaire, review of existing documentation (job descriptions, occupational standards from other countries, description of technological process, etc.), conference. All these techniques have strengths and weaknesses, advantages and disadvantages therefore the use of a combination of them would be most advisable, if we need to get the comprehensive and accurate picture of an occupation or of a part of it.

Occupational Analysis operates on the following principles:

- Experts who work in the occupation are better able to provide information on the occupation than anyone else;
- Any occupation can be analysed in terms of the core skills used in the occupation and the major functions that people perform;
- All skills and functions connect directly to the knowledge that workers must have in order to perform in the occupation.

Apart from the use for developing learning programmes, the data from an occupational analysis can be used for

- Auditing the skills required in an occupation;
- Developing job description;
- Reviewing the relevance of existing training programs;
- Improving the methods used in an occupation;
- Establishing a basis for accurate staff recruitment;
- Evaluating the performance of staff;
- Planning and problem solving;
- Writing standards.

The occupational analysis is a method of breaking down an occupation into two categories of components. On one hand there are the activities performed in an occupation and the associated expected outcomes (results). On the other hand we define the knowledge, skills, attitudes and performance requirements (KSAPR) necessary to obtain the expected outcomes.

Usually the data that emerge from an occupational analysis are unable to be formatted directly into occupational standards. Standards developers should interpret, categorise, collate and analyse the data to create the standard.

A occupational analysis comprises 4 stages:

1. Identification of occupation
2. Development of the skills framework
3. Identification of major functions
4. Setting up skill, knowledge, activities, performance requirements.

TECHNIQUES USED IN COLLECTING DATA FOR OCCUPATIONAL ANALYSIS

Analysis of local documentation (job description, national classification of occupations, etc)

Local documentation is many times a very useful initial source of information. A skilled analyser can use this source for defining the occupation and identifying main skills from the very beginning.

Analiza e dokumentacionit ndërkombëtar (ISCO,standartet profesionale nga vendet tjera)

Analysis of international documentation (ISCO, occupational standards from other countries)
This technique is also very useful especially in the initial stage of the analysis, which can provide valuable information on the future trends of the occupation, when it is compared with similar ones performed in more developed countries.

Interviews (structured or unstructured, sometimes combined with brainstorming)

Informal, unstructured, one to one or group interview allow the standard developer to ask flexible open questions. This technique is useful for exploring broad issues, but can lead to opinions rather than fact finding. The individual interview is usually an additional source of information when standard developer needs to clarify certain aspects insufficiently detailed with group interview and other techniques.

Formal interview is structured around a checklist of prepared questions, organised as a mixture of open-ended, problem solving and closed questions. The interview can be conducted either with an individual or with a group. It is crucial to gather in the group practitioners of analysed occupation as well as supervisors, in order to obtain clear and objective information.

Direct observation

The aim of this technique is to gain a clear picture and an understanding of a job or a task within its environmental, social and psychological context. When it is associated with an individual interview it enhances the quality of information gathered. This technique has a high degree of credibility, but requires skilled observer with knowledge in the job or task analysed in order make sense of the observation.

Questionnaire based methods and conferences are also techniques used for collecting data and although they provide reach information, on one hand they are expensive and time consuming, on the other hand they require specialised personnel for conducting the surveys.

CARRYING OUT THE OCCUPATIONAL ANALYSIS

The purpose of the occupational analysis is to obtain data that can serve as the basis for occupational standards. Standards developers should strive for specific detail about the functions that are performed in the occupation.

There are four basic stages in undertaking the analysis:

- Defining the Occupation
- Creating the Skills Framework
- Identifying Major Functions
- Identification of skills, knowledge, attitudes

Stage 1: Identification and definition of occupation

The first stage of any analysis is to clearly define the occupational area that is being analysed.

Stage 2: Creating a Skills Framework

The second stage of the analysis is to create a framework of the SKILLS AREAS which define the occupation. These include technical and non-technical skills. As preliminary work for the occupational analysis the standards developer should undertake some basic research on the occupation and draft this framework before the analysis commences. This can be checked with the group during the initial discussions in the structured group interview. The following is an example of a skills framework for the occupation of bricklayer:

Example

Occupation: Bricklayer

The framework indicates that the bricklayer has skills which he or she applies (or can) apply in all these areas.

A further feature of the analysis at this stage is that it identifies non-technical as well as technical skills. In this framework the non-technical skills have been identified as 'workplace skills' or 'Personal development skills'. This is an important point of analysis as competence means much more than the capacity to apply technical skills. In undertaking or reviewing an analysis at this stage standards developers must check to see if these have been identified. Before moving on to the next stage, the Standards developer and the group must reach consensus about the framework.

Stage 3: Identifying major functions

This stage involves identifying the major functions that are found within each of the skills areas. Major Function in relationship with an occupation or an occupational area may be defined as groups of activities leading to a certain result which is relevant for the occupation that is analysed. These functions have the following characteristics:

- They are generic, i.e. they are not specific to particular technologies, or locations,
- They integrate knowledge and skills;
- They are relevant to the occupation.

In developing this list, the group will frequently change its mind and go over the material that is being developed. This is normal as occupational analysis is an iterative process. In creating this list, the standards developer should strive for detail, probe extensively to ensure that the group are thinking about the occupation as a whole, not simply their job in it.

Workplace Skills	Erecting walls skills	Plastering walls	Erecting walls as-associated skills	Personal development skills
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Eventually a consensus will emerge about the list that is created. There is no given rule about the number of major functions to be found within an occupation, but generally standards developers should look for between 12 and 20 major functions.

The aggregate of the functions reflects the occupation. After Stage 3 the occupational analysis should have developed a chart similar to the following one.

Occupation: Bricklayer

SKILLS AREAS	MAJOR FUNCTIONS				
Workplace Skills	Organise own workplace	Plan own work activities	Maintain safe working conditions		
Erecting walls skills	Erect masonry walls	Erect gypsum board walls	Erect stone walls		
Erecting walls associated skills	Prepare plaster	Purchase and store construction materials	Maintain the equipment	Apply quality control	
Plastering walls	Cover walls with plaster				
Personal development skills	Update own knowledge and skills				

Stage 4: Skills analysis

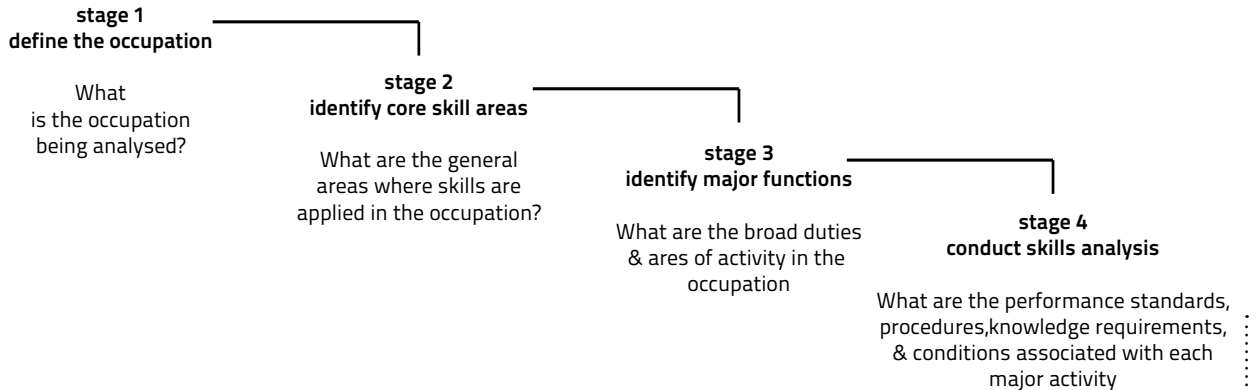
During this stage the standards developer gets the group to think about what occurs in the conduct of each of the major functions that have been identified. To get the group to think about the process, the standards developer should select a major function and analyse it the group to determine the information that is required. The goal is to create a schedule for each major function covering:

- A list of the **key activities, procedures and tasks** that can comprise the major function
- **The knowledge required to perform and to make judgements when carrying out the functions**
- **Attitudes** that need to be present if the function is to be performed well
- Performance standards and characteristics that commonly apply to the activities contained within the major function
- Interpersonal and communication skills that are necessary

The following is a list of questions that the standards developer should use in the third and fourth stage of the workshop:

- What exactly do you do when carrying this activity out?
 - What sort of?
 - How is this done...?
 - Is there anything else you want to say about this process?
 - What else do you do in this area?
 - Tell me more about ?
 - What kind of responsibilities are involved here?
 - When you do this what kinds of things do you have to know
 - What kind of judgements do you make when you are doing this
 - How do you know if the process is any good?
 - What makes it good?
- The list is not exhaustive and in each workshop others will emerge that could be added to it.

4 STAGES OF OCCUPATIONAL ANALYSIS



4 STAGES OF OCCUPATIONAL ANALYSIS: QUALIFIED WORKER IN CONSTRUCTION INDUSTRY

**STAGE 1: Identify
Occupation
Bricklayer**

STAGE 2: Identify Core Skill Areas
Work place skills, i.e.:
Erecting walls
Skills associated with erecting walls
Social/organisational skills

**STAGE 3: IDENTIFY MAJOR FUNCTIONS IN
SKILL AREA, e.g.**

Core skill area of erecting walls
Major functions:
Erect masonry walls
Erect gypsum board walls
Erect stone walls

STAGE 4: SKILLS ANALYSIS:

Develop a list of:
Attitudes required for each function
Procedures and tasks associated with each function
Knowledge required to perform each function
Performance standards associated with each function
Interpersonal and communication behavior associated with
each function
Key activities

POSSIBLE FORMAT FOR ORGANISING DATA RESULTING FROM SKILLS ANALYSIS

Major Function:Erect masonry walls.						
A	B	C	D	E	F	G
Key activities (and results)	Procedures and tasks associated with each function	Performance criteria (outcomes + benchmark of quality)	Knowledge required to perform the function	Skills	Attitudes	Interpersonal and communication behaviour associated with each function
<p>Identify the shape and features of the walls to be erected</p> <p>Erect masonry walls of different shapes</p> <p>Verify the quality of the erected walls</p>	<p>Analyse the blueprints and engineer's details</p> <p>Prepare the support layer</p> <p>Prepare or purchase the plaster</p> <p>Select the bricks</p> <p>Cut and shape bricks</p> <p>Arrange bricks and plaster layers</p>	<p>The shape and characteristics of the support layer meet the quality requirements</p> <p>Plaster prepared or purchased in accordance with specification of the blueprint or with engineer's commendations</p> <p>Walls erected in accordance with shape and quality specified in the blueprints</p> <p>When working prevents risks and hazards for self and others</p> <p>Appropriate tools and materials are used</p>	<p>Basic engineering graphics</p> <p>Recipes for preparing plaster</p> <p>Quality assurance working procedures specific for masonry</p> <p>Rules of erecting various shapes of walls</p> <p>Health and safety norms specific for construction industry and for construction site</p> <p>Specific tools for construction and for quality control</p>	<p>Operating specific tools and equipment for</p> <p>- measuring of length, weight, volume</p> <p>- cutting the brick</p> <p>- building walls</p> <p>- preparing plaster</p>	<p>Attention</p> <p>Responsibility</p> <p>Meeting deadlines</p>	<p>Communication (basic)</p> <p>Team working (basic)</p> <p>Customer awareness (basic)</p> <p>Problem solving (basic)</p>

VERIFICATION AND VALIDATION OF DATA RESULTING FROM OCCUPATIONAL ANALYSIS

After the data has been organised and collated, but before it is passed on to the writing team for standards development, it needs to be checked for accuracy and breadth. The process of verification can be done with those who supplied the information in the first place, the writing team who are experts in the occupation. Those who are verifying the data should be provided with the organised material and asked for either verbal or written comments.

Development of Occupational Standards

The format of occupational standards

Where possible, developers should adopt a common format for the writing of the standards. This does not mean that all occupational standards should look exactly the same, but be based on common principles, i.e., all standards should say something about the **major activities** that a person has to undertake, **the understanding and knowledge** they should have, **the things they are expected to be good at and the environment in which they will normally carry out the functions**. Formats are useful. In a national context, standards should be developed around a broad common format.

A common format allows for:

- the recognition of competencies across occupation;
- a shared understanding of what an occupational standard

The format breaks the occupation down into a series of broad functions. Each broad function is itself broken down into a series of key activities, which further describe and provide more information on requirement of the broad function. For each key activity a series of performance statements are identified.

These describe the outcomes or performances that have to be achieved if the competence described in the key activity and broad functions are to be successfully performed.

Developers of occupational standards seeking also have the option of adding further categories of information to make the context of the standard clearer or to give more guidance on the evidence required for the successful assessment of individuals against the standard.

The Content of Occupational Standards

Occupational Standards are about performance, including: both:

- the ability to successfully complete the functions required in an occupation; and
- the application of knowledge and understanding in an occupation.

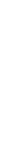
In being competent in occupational standard individuals will be expected to:

- apply technical skills;
- make judgements and decisions;
- exercise creativity;
- organise and manage work;
- work with others as members of a team;
- communicate effectively;
- deal with the nature of their work environment, including the capacity to deal with contingencies and the unforeseen, etc.

Occupational standard generic format

Function

A significant function in the occupation



Key Activity

Important activities and tasks associated with performing the work of the function



Performance criteria

Statement on what a person is expected to achieve and quality of outcomes and activity



Range of context

The context in which the performance is to be achieved (places, types equipments, materials, clients, etc.)



Evidence statement

The types of evidence which would indicate that the person is competent



SETTING UP FUNCTIONS AND KEY ACTIVITIES

Skills Areas

The writing of standards begins with the identification of the Skills Areas within the occupation. These are descriptions of groups of major skills that are found within the occupation. These general groups will be the technical and non-technical skills that people must have if they are to be competent in the occupation. For example a warehouse worker will have competencies that fall within the Skill Areas of

- Warehouse Systems and Processes
- Handling Stock
- Customer Service
- Supervision

or similarly a bricklayer might have competences in the general skill areas of

- Demolishing walls
- Building walls
- Plastering walls

Within each of these skill areas the standards writers will identify units of competence. For example, in the Skill Area of Building walls, a standards writer might draft units of competence entitled:

- Build brick walls of high complexity
- Build simple brick walls
- Build gypsum walls of various shapes

The identification of skill area is a valuable tool and aid for the organisation of the occupational data as it emerges from the analysis and is written up by the standards writers. Commonly standards developers will have prepared the framework of the Skill Areas. It is essential that both the developer of skills analysis and the standards writers use Skill Areas as headings to the analysis and development of their standards.

Developing Functions

The identification of skill areas is a relatively easy task that can be undertaken by someone who is familiar with the occupation or who has undertaken some research. Functions are the significant components of occupational standards. Developing functions is a critical stage of the standards writing process. The function contains all the aspects of competence, i.e. key activities, performance statements, range statements, and evidence statements. Errors at this stage will be compounded throughout the development process. Writers should exercise great care and proceed cautiously in the drafting of broad functions.

The function must be a component of work in an occupation that integrates both knowledge and skill. It is NOT a procedure, a simple task or a body of theoretical knowledge. A well written function will include all these things. The key features of function are that:

- it is relevant to the occupation and recognisable to people who work in the occupation;
- its successful performance integrates knowledge and skills
- its application is transferable from one location and environment to another.

In developing the functions, standards writers should base their work on the skill areas and major functions that have been identified in the occupational analysis. Once a set of broad functions have been drafted it should be discussed extensively by the writers and the standards developers until consensus has been reached.

Activities

Many of the features of functions also apply to activities. Activities should not be prescriptive lists of tasks or procedures. The role of activities is primarily to provide more information to the users of standards by indicating the types of activities contained within the function. The major features of functions are:

- coherence;
- breadth;
- description.

Activities must be relevant to the function title. As with functions, activities must be broader than a specific tasks or procedures and like functions they must integrate knowledge and skills. This does not mean

that activities should contain statements of knowledge and skills, but simply the activity described could not be undertaken successfully without applying both knowledge and skill.

There is no formal rule in determining the number of activities that might be found in a function.

In drafting the activities of a function, the standards writers will have a significant amount of information available, namely, the general skill areas and the functions. These will provide important guides to the drafting process. The writing of activities should not commence until the function have been identified and agreed. Writers should always be aware that the purpose of activities is to give more information and description on what is intended by the function.

DEVELOPMENT OF PERFORMANCE CRITERIA AND RANGE STATEMENT

Performance criteria are associated with the activities specified for a function. They are series of statements that identify the characteristics of quality that have to be achieved if the work described in the function and activities is to be successfully performed. As with both activities and functions the purpose of the performance is to offer information about the work described. Like the other parts of the format, performance statements should NOT be prescriptive. Performance statements refer to general statements of quality that are expected to be found wherever the activities in the function are found. Therefore performance statements must be written in a manner that allows their application to more than one process, production method or location.

In some cases performance statements can simply refer to established international or national standards, e.g. in occupations dealing with electrical work performance statements could simply state that the activity is to be conducted in accordance with the national safety standard for wiring or electrical fault finding. In other cases the quality statements may not be so obvious, especially in occupations that are undergoing change or just emerging. In these cases, developers will have to create the statements from the analysis. The development of performance statements should not commence until the elements of competence have been finished. At this stage the developers will have a large volume of useful and organised material. If the units of competence and elements of competence have been properly constructed then identifying the performance statements should be fairly straightforward.

Performance statements are general statements of quality characteristics associated with a particular activity. They are the things that people would look for if the work were being performed well. For example for a radio broadcaster announcing the news or presenting a program performance statements might deal with

the appropriateness of the vocal tone for the material being presented or the continuity in the presentation. Did the presentation flow smoothly? In a restaurant performance statements might deal with such things as promptness of services, politeness, presentation of food, the manner in which it was prepared. Politeness, promptness, or smoothness of presentation are all general quality statements applying to the performance of particular activities. These are the performance statements. Other performance statements might include statements of quality that deal with:

- Quality of finish
- timeliness
- clarity
- appropriateness of style and manner
- brevity
- usability
- comfort
- production tolerances
- suitability
- correctness
- completeness
- accuracy
- compliance with standard operating procedures.

This is by no means an exhaustive list. Any activity can be considered in terms of its quality. Writers of performance statements need to ask themselves what the critical features of quality would be in an activity. These critical features are the basis of performance statements.

Range statements are a device that is designed to provide more information on the context of the application of the activity described in the unit of competence. Range statements apply to the function as a whole, not to individual activities or performance statements.

Range statements will tell users of the function where and with what the activity described by it is expected to be performed. The range statement might include:

- Geographical location
- Specific enterprise conditions
- Materials
- Equipment and/or tool types
- Customer types

Without specifying the range statements in a function there is a danger that successful performance in one set of conditions will be considered as successful

performance in any other conditions. For example, a worker using manual gas welding process is not necessarily good in using manual metal arc process. As long as the working tools and procedures are mentioned separately in the range of context, there is necessary for a worker to be assessed for each context in order to determine the full competence.

Performance in one location, using one set of processes or equipment types will not always be a suitable measure of ability across the occupation.

DEVELOPMENT OF EVIDENCE REQUIREMENTS

Evidence Statement

The purpose of Evidence Statement is to provide link to the eventual assessment of the standard. The evidence is used to indicate the types of evidence that someone assessing the performance in a particular function would look for. As with other aspects of the format the information in the Evidence Statement should be expressed in a general way.

The Evidence Statement might include

- A broad description of the knowledge base that someone performing the function might be expected to have
- A broad description of the kinds of activity that someone performing the function would be expected to undertake.

The evidence statement needs to refer to the following:

Critical aspects of evidence to be considered
Concurrent assessment and interdependence of units
Underpinning knowledge

- Methods of assessment
- Key competences

The Evidence Statement should be undertaken only when the all other components of the unit of competence have been completed.

OCCUPATIONAL STANDARDS DEVELOPMENT CHECKLIST

In developing occupational standards people involved should be aware of having consistency among various occupations. For assuring the consistency, three issues can be considered as main guiding ideas: content,

technical aspects, process. The following list may guide the developers in making an on-going as well as a final verification of their work results.

1. CONTENT

Have you:

- Focussed on outcomes?
- Captured all aspects of the competences approached? (i.e. task skills, task management, job environment skills, contingency skills)
- Incorporate underpinning knowledge?
- Identified and addressed regulatory and licensing requirements? (such as quality standards, health and safety requirements, environmental regulations)?
- Covered the range and breadth of occupation's function?

2. TECHNICAL

Have you:

- Met the established format?
- Include for each function the range statement?
- Include for each function the evidence guide, comprising underpinning knowledge and critical aspects for assessment?
- Linked the evidence statement to performance criteria and range and context?

3. PROCESS

Have you:

- Agreed with stakeholders on a common format of occupational standards
- Agreed with stakeholders on methodology for developing standards?
- Select the appropriate persons and industry specialists for participating in the development process?
- Select skilled coordinator for conducting the development process?
- Train the occupational standard developers?
- Select relevant organisations and persons for reviewing the draft of standard?

DEVELOPMENT OF OCCUPATIONAL STANDARDS – GENERIC MODEL

Steps	Actions	Who, How
1	Establish the priority sector(s) (industry area) for development of occupational and qualifications	National or local authorities from identified priorities (National or Regional Strategic Plans, labour market surveys, etc)
2	Identify the occupations to be the focus of standards development	Same as above
3	Identify and consult with stakeholders over the development process	Consultation with relevant and interested stakeholders and identification of working group including people with relevant experience and knowledge in the occupation
4	Conduct Occupational Analysis	Techniques for collecting information: Individual and group interview Review of local and international documentation Questionnaires , or any other relevant
5	Identify (develop) occupational standards	Writing team should include people with experience in writing standards, teachers/ trainers in respective field, and people working in the occupation
6	Verify	Stakeholders will be involved in the verification process of occupational standards
7	Implement and Review	Development of vocational qualifications and curriculum Implementation of curriculum

Development and verification of occupational standard from occupational analysis

Analysing the Data Sheet

The data sheet contains information on:

Major Functions in the Occupation	
Key activities linked to procedures and tasks associated to each function	Column A
Performance standards: The results of each activity + Benchmark of quality for each outcome or each activity	Column B
The knowledge that a person would be expected to have in order to perform each activity in order to obtain the results	Column C
Skills and attitudes that a person might need to employ in order to perform the activities successfully	Column D
Fundamental skills: Critical thinking , interpersonal behaviour associated with each function, communication, numeracy, personal and professional development	Column E

The purpose of the technique is to guide writers during the development process. The questions asked at each stage remain general.

The technique is not intended to replace judgement and knowledge of the occupational experts merely to

help them format that knowledge into occupational standards.

The technique has at least 5 stages. Each stage is based on a particular and main component of the occupational standards format..

Stage 1	Determine Functions
Stage 2	Define Key Activities for each function
Stage 3	Develop Performance Criteria
Stage 4	Develop Range Statement
Stage 5	Identify Evidence Requirements

Each stage is completed by analysing the Occupational Analysis Data Sheet, asking a series of questions of the columns of information in the sheet, and identifying the required information for each part of the format.

At each stage writing teams must ASK if the material in the columns relate to each other and discuss the answer before deciding on whether or not a component

of the format can be derived from the information in the data sheet. The structured questions are not meant to replace the expertise of the writing team members, merely to guide it. In some cases, the writing team members will use their knowledge to add or modify information in the data sheet.

Sample of occupational analysis data sheet

Function: Erect walls

A	B	C	D	E
Activities (and results)	Performance criteria (outcomes + benchmark of quality)	Knowledge required to perform the function	Skills & Attitudes	Interpersonal and communication behaviour associated with each function
<p>Identify the shape and features of the walls to be erected</p> <p>Erect masonry walls of different shapes</p> <p>Verify the quality of the erected walls</p>	<p>Analyse the blueprints and engineer's details and identifies the shape and characteristics</p> <p>Prepare the support layer to meet the quality requirements</p> <p>Prepare or purchase the plaster in accordance with specification of the blueprint or with engineer's recommendations</p> <p>Erect walls in accordance with shape and quality specified in the blueprints</p> <p>Prevent risks and hazards for self and others</p> <p>Appropriate tools and materials are used</p>	<p>Basic engineering graphics</p> <p>Recipes for preparing plaster</p> <p>Quality assurance working procedures specific for masonry</p> <p>Rules of erecting various shapes of walls</p> <p>Health and safety norms specific for construction industry and for construction site</p> <p>Specific tools for construction and for quality control</p>	<p>Operating specific tools and equipment for</p> <ul style="list-style-type: none"> - measuring of length, weight, volume - cutting the brick - building walls - preparing plaster <p>Attention</p> <p>Responsibility</p> <p>Meeting deadlines</p>	<p>Communication (basic)</p> <p>Team working (basic)</p> <p>Customer awareness (basic)</p> <p>Problem solving (basic)</p>

Stage 1: Establishing the Functions

Analyse:	Questions	Guide	Active Principles
Function and column A	<ul style="list-style-type: none"> ▪ From your experience, does the major function or key activity describe an activity that is transferable to different contexts in the occupation, e.g. <ul style="list-style-type: none"> - jobs, - task, - locations, equipment - processes ▪ From your experience, does the major function or key activity describe and outcome that has a purpose within the occupation. ▪ Does it relate to something that has to be achieved? ▪ Does the function or activity have a focus that is relevant to the work of the occupation ▪ Is the focus something that could be achieved by a single person? ▪ Does the activity contain a wide variety of tasks ▪ Would someone have to use knowledge and understanding to perform the activity 	<p>Ask: 'Is this a Function?</p> <p>Propose: 'Yes/No it is (not) a Function</p> <p>Discuss: ' if it is or not a function"</p> <p>Consider: 'the answers to the questions in the previous column"</p> <p>Decide: ' if it is a function"</p>	<ol style="list-style-type: none"> 1. Interpretation: Do not simply copy the major function title. 2. Breadth: Ensure that the activity could apply to a range of circumstances and does simply apply to a particular technology or work procedure 3. Integration: Does the function describe activities that requires the use of knowledge and judgement to achieve good performance 4. Transferability: Does the activity being described by the function cover a range of contexts. I.e., could the individual transfer this competence.

Stage 2: Defining the Key activities

Analyse:	Questions	Guide	Active Principles
Major function + Column A + Column B	<ul style="list-style-type: none"> Are there activities in column A that might be identified as functions or they are really key activities? Are the activities and associated outcomes relevant for the function? Do performance criteria include activities that can play the role of key activities? How much more information do the key competences in column F provide on the activity described by the function? 	<p>Ask: 'Is this a key activity of the function?'</p> <p>Propose: 'Yes/No it is not a key activity'</p> <p>Discuss: 'if it is or not a key activity...'</p> <p>Consider: 'the answers to the questions in the previous column'</p> <p>Decide: 'if it is key activity'</p>	<ol style="list-style-type: none"> 1. Relevance: Are the key activities relevant to the function they are being written for? 2. Breadth: The key activities should not be a list of tasks or procedures. The purpose of key activities' statements is to provide more information on what is intended by the function, not to prescribe how to perform the function. 3. Knowledge and understanding: Does the key activity require the use of knowledge, judgement and understanding?

Stage 3: Develop Performance Criteria for the Key Activities

Analyse:	Questions	Guide	Active Principles
The function + All columns	<ul style="list-style-type: none"> What are the outcomes of the function and of related key activities? How would you define the quality of these outcomes? How would you define a quality performance for key activity? Are the knowledge in column D the relevant background for performing the tasks identified? Taken together do columns E and F include the understanding and judgement suggested by column C 	<p>Ask:</p> <ul style="list-style-type: none"> Is this a performance criterion for the key activity? Does it define the quality performance and quality outcome <p>Propose: 'Yes/No it is (not) an performance criteria for the key activity'</p> <p>Discuss: 'if it is or not a performance criterion for the key activity'</p> <p>Consider: 'the answers to the questions in the previous column'</p> <p>Decide: 'if it is a performance criterion for the key activity'</p>	<ol style="list-style-type: none"> 1. Descriptive: The performance criteria should be general descriptions of the outcomes and characteristics of qualities associated with the successful performance of the key activity. Performance criteria should not be prescriptive statements 2. Performance criteria should describe things expected to be achieved 3. Quality: Performance criteria are the characteristics that people would look for if the activity was being done well

Stage 4: Determining Range Statement

Analyse:	Questions	Guide	Active Principles
Functions and activities	<p>Are function and activities applied in a range of situations? If they refer to only a particular situation return to function/key activity and revise!!</p> <p>Do function, key activities, and performance criteria require a range of tools/equipment or address a range of materials which can be mentioned generically in the body of the occupational standard?</p> <p>Did you capture all working conditions and situations when activities might be performed? How would you detail this situations?</p>	<p>Ask: 'are the generic statements relevant for the tasks and procedures mentioned in column B "</p> <p>Propose: 'Yes/No it is (not)</p> <p>Discuss: ' if it is or not</p> <p>Consider: 'the answers to the questions in the previous column"</p> <p>Decide: ' what to include in the context statement"</p>	<p>Specific</p> <p>Without specific Range Statement there is a danger to presume that successful performance in one set of condition to be considered as well successful in another set of conditions which actually are not appropriate.</p>

Stage 5: Determining Evidence Requirements

Analyse:	Questions	Guide	Active Principles
Functions, Key activities, Performance Criteria, Knowledge, Skills, Key Competencies, Range Statement	<ul style="list-style-type: none"> ▪ Is the knowledge in column D relevant to the Function, key activities and performance criteria. ▪ Are the identified skills and attitudes relevant to the key activities and performance criteria ▪ Do the key skills (competencies) described in column F support the competent performance of the function? 	<p>Ask: 'Is knowledge relevant to the function"</p> <p>Propose: 'Yes/No it is (not)</p> <p>Discuss: ' if it is or not</p> <p>Consider: 'the answers to the questions in the previous column"</p> <p>Decide:</p> <ul style="list-style-type: none"> ▪ ' what evidence of knowledge to consider" ▪ 'what evidence of performance would you expect from a person who needs to be assessed?" ▪ 'is it necessary to require other evidence?" 	<p>Knowledge and performance</p> <p>Evidence used to identify competence in a function should include both knowledge and performance, i.e.:</p> <ul style="list-style-type: none"> ▪ what knowledge should a person demonstrate in order to make the assessor sure about him/her backgroundj <p>Evidence Requirements should focus on critical aspects of a competent performance, i.e.</p> <ul style="list-style-type: none"> ▪ range of activities the person should be able to do ▪ skills and attitudes

CRITERIA FOR DETERMINING THE QUALITY OF OCCUPATIONAL STANDARDS

Developers can monitor the quality of their work by asking a series of questions as each stage of development is reached. These questions include:

Functions

- Are the functions applicable in a range of jobs in the occupation?
- Do the functions identify the most important activities, skills and outcomes in the occupation?
- Would the performance of function require the person who performs it to incorporate judgement and understanding?
- Are the functions forward looking and thus likely to maintain their relevance if technology or work organisation changes;
- Are the functions clearly written and understandable to people who will use them;
- Are all the components of the format present in the occupational standard?

Key Activities

Are the key activities broader than a specific procedure or task in a job?

Are the key activities directly relevant to the function which they define?

Are the key activities descriptive for the function and not prescriptive?

Performance Criteria

Do the performance criteria contain a clear statement of the characteristics of quality that is expected in competent performance?

Does the performance avoid prescriptive procedures and tasks?

Do the performance criteria describe only the essential characteristics of competent performance?

Do the performance criteria require the application of knowledge and judgement?

Range statement

Does the range statement detail all generic statements included in the body of function and key activities?

Does the range statement refer to all kind of materials, tools, equipments used for performing the tasks described in the function?

CHECKLIST FOR OCCUPATIONAL STANDARDS QUALITY

This checklist is broken into 3 main areas of quality

1. Content Quality – to be verified by industry experts with relevant background for the occupational standard in discussion

2. Format Quality – to be verified by the NQA expert with occupational standards

3. Process Quality – to be verified by the NQA expert with occupational standards

1. Content Quality

Issues to be addressed during the verification process	Y	N	Comments
Does the occupational standard cover a range and breadth of functions and activities			
Emphasises skills that require thinking and judgement			
Incorporates knowledge and understanding			
Includes the ability to manage tasks in a wide range of situations?			
Deals with unexpected circumstances			
Includes the ability to work and communicate with others?			

2. Format Quality

Issues to be addressed during the verification process	Y	N	Comments
Has the OS the format agreed and described in the methodology? (Does it contain all headings established in the methodology?)			
OS is based on functions?			
Each function is made up of a number (3-5) of key activities?			
The function is expressed with a noun deriving from an action verb and has a direct reference to its result?			
Each key activity covers a variety of performance criteria?			
Performance criteria include outcomes and evaluative statements of quality performance?			
The functions contain a range statement which describe the range of circumstances and conditions under which the competence should be performed			

Each function contains assessment requirements that state what evidence of knowledge and skills should a person provide to demonstrate he/she is competent in respective function			
Does each component described above match the definition as given in the methodology?			

3. Process Quality

Issues to be addressed during the verification process	Y	N	Comments
The development was based on research into the occupation			
The research identifies:			
▪ Major Skill Areas			
▪ Major functions			
▪ Key activities			
▪ Outcomes associated with activities			
▪ Characteristics of quality			
▪ Skills			
▪ Knowledge			
▪ Attitudes			
Writing process used occupational experts			
Writing process used occupational analysis data			
Verification process involved other industry experts than the ones who developed the standard			
Changes recommended by other industry experts adopted or negotiated with the development team			

FORMAT OF THE OCCUPATIONAL STANDARDS

Cover page with the logo of the MEST

Logo of the EU KOSVET V project
Name of the standard (occupation/qualification
profession)

Page 1:

Logo of CVET and NQA (mentioning NQA for quality
verification)
Membership of the development team
Organisations involved in the development and verification
processes
Experts involved in the verification/review process
Date of approval
Registration number
Projects and donors that supported the development of OS

Page 2/3


A table with the functions related to the occupation
approached and a description of each function.

The following pages contain the full description of each
function, with all related headings, as decided in the
methodology for development of OS, respectively:

Title of function (the same as in page 2/3)
Description of function (the same as in page 2/3)
The table with key activities, performance criteria,
knowledge, skills, and key competencies
The range statement
The assessment/evidence requirements



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