NQF-SQF
National Qualifications Frameworks
Sectoral Qualifications Frameworks

DEKRA

Methodological approach for a holistic and functional description of work processes
[Draft]

Deliverable:	No 04
Version:	1
WP:	02
Last update:	02/09/10
Prepared by:	Gerald Thiel, DEKRA Akademie GmbH
With contributions from:	NQF-SQF partners

Workpackage 2 plays a crucial methodological role for the whole project *NQF-SQF* since within this workpackage the *employability grid* shall be designed which shall deliver the basic instrument used to create *common grounds for referencing national and sectoral frameworks to the EQF.* It is understood that this grid will deliver criteria for assessing qualifications and occupational profiles linked to NQFs and SQFs on a common basis since employability is one of the main conditions for achieving one of the principal aims of the EQF: "to promote citizens' mobility between countries"[1] .

In terms of individuals' capacities to be described by qualifications and profiles, employability is substantially defined by individuals' *abilities to take over tasks within concrete work processes,* and as it can be assumed that qualifications and profiles basically refer to these abilities at any rate in some way, the planned grid should first and utmost be used in order to make visible *how* (and how far) qualifications/profiles actually refer to abilities mentioned above.

Actually the EQF per se should deliver criteria for assessing the value of qualifications or profiles with regard to their usability for the participation in work processes: The EQF is based on *learning outcomes* described in *knowledge, skills,* and *competences,* in other words: The EQF descriptors *transcend* the area of mere cognitive terms and provide a link to the world of work. This is made obvious by the general definitions of the descriptors:

> (g) 'knowledge' means the outcome of the assimilation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study. In the context of the European Qualifications Framework, knowledge is described as theoretical and/or factual;

> (h) 'skills' means the ability to apply knowledge and use know-how to complete tasks and solve problems. In the context of the European Qualifications Framework, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments);

> (i) 'competence' means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal

---

[1] „The Euopean Qualifications Framework for Lifelong Learning (EQF)", http://ec.europa.eu/education/policies/educ/eqf/eqf08_en.pdf, p.2

prepared by Gerald Thiel (DEKRA)

development. In the context of the European Qualifications Framework, competence is described in terms of responsibility and autonomy.[2]

Two observations are important:

1. There is a reference to *work or study* and *tasks* which on the one hand makes the intended work functionality of the EQF manifest, but on the other hand makes a difference between academic and other work which – at an abstract level as it is represented by the EQF – only is understandable if during the set-up of the EQF *institutional particularities* had to be considered which made it necessary to introduce *study* as a separate category.

2. The category *competence* is a "meta-ability" which utilizes *knowledge* and *skills,* and also abilities which in former times were called *soft skills,* for purposes which are not defined. But the differentiation between mere *knowledge* and *skills* on the one hand, and *competence applying them* on the other hand, makes clear that abilities are only valuable in *contexts*: in *work or study situations and in professional and personal development.* It completes the picture that *responsibility and autonomy* are mentioned: The definition of *competence* refers to the *structure of work organisation*; referring to levels of *responsibility and autonomy* competence levels should mirror *hierarchies in the professional world*.

According to topic 2, the definition of the EQF-descriptor *competence* includes the possibility to mirror requirements of work as abilities in a holistic way. The *structure of the EQF itself*, however, *does not comply with this issue*. Although *knowledge* and *skills* are defined as categories steered by *competence*, they also appear as *independent categories* side by side with *competence* which makes the specific position of this category disappear: *Knowledge, skills, and competence* are equally applicable as *level descriptor,* for not grounded *knowledge* and *skills* allow for various interpretations, and in some cases there might even be different assignments to levels from the point of view depending on whether *knowledge, skills,* or *competence* is chosen for assessment.

These difficulties favour assignments of qualifications based on *underlying pre-decisions* which should play no role according to the EQF philosophy of learning outcomes orientation, but are virulent due to the background of EQF setup: It is no secret that the EQF had to be compatible with the *Framework for Qualifications of the European Higher Education Area* developed as a result of the *Bologna Process;* this is mentioned in the annex of the EQF document.[3] Although this framework is also oriented to learning outcomes, levels defined in this framework are basically related to *phases* of higher education (*higher education cycles*). It does therefore not surprise that EQF levels 6-8 are currently mainly considered to deliver references to *degrees* of Higher Education (level 6 corresponds to Bachelor, level 7 to Master, and level 8 to PhD); and following this kind of consideration, EQF discussion in many countries is more and more limited to suggestions for the allocation of further (non-academic) degrees to levels which opens the perspective of a debate which would be endless if it would not be finished by some decisions reflecting less conceptual consistency than compromises achieved on the basis of diverging political wills.

---

[2] l.c., p.11
[3] l.c., p.14

NQF-SQF:

Methodological approach for a holistic and functional description of work processes

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Education and Culture DG
Lifelong Learning Programme

2/6

prepared by Gerald Thiel (DEKRA)

The structure of the EQF does obviously not provide many obstacles for this kind of understanding. As described above, there are definitely elements of EQF descriptors which deliver pointers for reference to the structure of work processes, but they do not play a big role in current discussions. [4] The *employability grid* to be developed within WP 2 is not planned to be an instrument to achieve work process orientation of the EQF from outside, but a tool to make its inherent work process orientation *explicit*.

The first step to be done in order to achieve this goal is described by the tasks to be carried out in the framework of Deliverable 4 *Methodological approach for a holistic and functional description of work processes:*

> *This deliverable documents different approaches to describe work processes considered for further investigation within this project as well as their selection criteria and the approach applied in order to analyse them. Furthermore it documents the analysis results and the conclusions drawn from analysis. Finally it presents a methodological approach for a holistic and functional description of work processes and discusses its usability for deriving a system of abilities from the work process description received.[5]*

The following groups of relevant work process descriptions can be identified[6]:

1. If pure work process descriptions are concerned, it should be considered what the ITB Bremen has published. [7] This approach concerns the *procedures to be used for analysing work processes at shop floor level;* a reference to *specific categories of vocational standards* is out of the scope of this approach.

2. There are some methodological approaches dealing explicitly with the *relationship between work processes and abilities of individuals who shall carry out certain tasks within work processes.* They have influenced the design of some national VET systems. Those are:

   - The DACUM (= Developing a curriculum) approach[8]

   - The functional analysis approach[9]

   - The ETED approach (Emploi-type étudié dans sa dynamique)[10]

   - The Dutch competence based qualification system (KCH) includes also an explicit methodological reference to work processes and derives from that a fixed set of 25 *competencies* which is used for all occupational sectors.[11]

---

[4] Therefore the EQF is sometimes only perceived as a structure which helps to describe *relationships between qualifications*
[5] See NQF-SQF Project Proposal (unpublished)
[6] In order to be able to identify the following approaches, it was very helpful what could be found in the following sources: *CEDEFOP, The dynamics of qualifications: defining and renewing occupational and educational standards, CEDFOP Panorama series, Luxembourg 2009,* and *VET Stakeholders in the Automotive Sector, Interim report on the results of Work Package 3.* It should at this stage be mentioned that there is a lot of national information about references of vocational standards to work processes. But they concern mainly the way how data are collected, which stakeholders are involved, etc. This is not the focus of the document at hand which has to deal with the *descriptions* of work processes.
[7] See e.g. *Georg Spöttl, Work Process Analysis in VET Research,* ITB Forschungsberichte 22/2007
[8] See *http://www.dacum.org*/
[9] See *Bob Mansfield, Hermann Schmidt, Linking vocational education and training standards and employment requirements – An international manual,* Turin: European Training foundation, 2001
[10] See *Nicole Mandon, Emmanuel Sulzer, Analysis of work: describing competences through a dynamic approach to jobs,* and *Olivier Liaroutzos, Emmanuel Sulzer, La methode ETED, Del l'analyse du travail aux référentiels d'emploi/métier, Marseille: Céreq 2006*
[11] See *Dutch competence-based qualification system: Background, structure, procedure, concepts, and formats, Annex 2: List of competencies.*

NQF-SQF:
Methodological approach for a holistic and functional description of work processes

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Education and Culture DG
Lifelong Learning Programme

3/6

prepared by Gerald Thiel (DEKRA)

These approaches have been developed before the EQF was set up; there is, of course, no reference to it.

3. It is important to consider that not only those VET systems which refer to the above mentioned approaches are based on a certain view on work processes; implicitly or explicitly this is the case for all of them. It would be interesting, but at the same time very time-consuming, to identify the models of work processes underlying VET system descriptions. Since these descriptions mostly show the results of stakeholders' collaboration, it can be expected that a big number of relevant issues is covered.

4. In the course of establishing the EQF, some reference approaches have been developed which on the one hand include explicit work process descriptions, on the other hand define a link to the EQF (as the eCompetence Framework, the Reference Objective Approach, TIPTOE, European Sustainable Professionalisation Approach).

In order to provide for maximum justification of the methodology to be used for setting up the *employability grid*, it would be fine to analyse in detail the four groups of work process descriptions mentioned above and to describe the results of analysis in a synoptic way. But this would exceed the possibilities of the NQF-SQF project. Therefore a *pragmatic way* was chosen:

1. The whole material[12] was examined in order to identify the *crucial points for setting up the employability grid*. This led to the following results:

   - Work process analysis should not start from the work assigned to a single profession, but from the whole ensemble of actions to be understood as belonging together since they refer to a common *goal:* to deliver a product or service.

   - It should be considered that this goal orientation has consequences for the whole *way how work is carried out:* It is necessary to *organise* this way according to the *state of the art* delivered via competition on the market or by public quality standards.

   - This leads to *structures of work processes* and to the design of *actions* to be carried out within these structures. Individuals have to be *able* to carry out these actions within these structures which should steer the *outcomes* of their *learning.* Those actions have been categorised for sectors (as for the ICT sector). If it would be possible to set up a *system of sector-overarching categories describing parts of work processes*, this would help to assign required abilities to *educational levels* (as in the EQF) on a comparable basis which can be found *in the work process*, for these categories (as *plan, build*, etc.) reflect *positions* in the above mentioned "ensemble actions" or can be easily specified in this respect.

   - Professional activities take place in the framework of an organisation, but are, of course, related to society in general. In terms of requirements individuals are confronted with in their professional life, this is mirrored in alternatives of decisions which can be taken differently according to interest and ethical orientation. It should be one of the abilities to

---

[12] See Annex 1 for a list of materials reviewed.

NQF-SQF:
Methodological approach for a holistic and functional description of work processes

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Education and Culture DG
Lifelong Learning Programme

4/6
prepared by Gerald Thiel (DEKRA)

be used in the work process to deal properly with this issue according to societal/ethical values.

2. On the basis of these reflections, three approaches were selected which seem to be best appropriate to deliver a basis for developing a holistic employability grid covering all issues mentioned above:

- The Reference Objective Approach

- The eCompetence framework

- The Dutch VET system

Annexes:

Annex 1: Sources reviewed for the development of this deliverable

For further information on the project please consult:	For further information on the paper please contact:
www.project-nqf-sqf.eu	DEKRA Akademie GmbH at EU-project.akademie@dekra.com Gerald Thiel at gerald.thiel@t-online.de

NQF-SQF:

Methodological approach for a holistic and functional description of work processes

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Education and Culture DG
Lifelong Learning Programme

5/6

prepared by Gerald Thiel (DEKRA)

Annex 1: Sources reviewed for the development of this deliverable

Bartram, D. (2006). *The SHL Universal Competency Framework*. available at:
http://www.shl.com/OurScience/Documents/SHLUniversalCompetencyFramework.pdf, 01/09/10

Breyer, J et al. (2010). *Interoperability of European e-Career Services: CEN/ISSS Workshop ICT – SKILLS*. unpublished draft

CEDEFOP (2009). *The dynamics of qualifications: defining and renewing occupational and educational standards*. Luxembourg: Office for Official Publications of the European Communities

CEDEFOP (2005). *European perspectives on learning at work: the acquisition of work process knowledge*. Luxembourg: Office for Official Publications of the European Communities

FLM (2010). *NQF-SQF: WP2 Employability grid contribution*. unpublished paper

Hensge, K., Lorig, B. & Schreiber, D. (2009). *Kompetenzstandards in der Berufsausbildung (Abschlussbericht)*. available at: http://www2.bibb.de/tools/fodb/pdf/eb_43201.pdf, 01/09/10

KCH et al. (2010). *Testing and Implementing EQF-Principles in Trade Organizations and Education The European Qualifications framework (EQF)... the transformation from a theoretical model into a practical tool*. Brussels: Information dossier European Conference TIPTOE

KCH International (2010). *Dutch competence-based qualification system: Background, structure, procedure, concepts, and formats*. unpublished paper

Labruyère, C., Lageix, M.-P., Liaroutzos, O., Mériot, S.-A., Rousseau, M., Sulzer, E., Teissier, J. & Ulman, A.-L. (2006). *La méthode ETED: De l'analyse du travail aux référentiels d'emploi/métier*. available at: http://www.cereq.fr/cereq/Relief14.pdf, 01/09/10

Luomi-Messerer, K. (2009). *Using the VQTS model for mobility and permeability: Results of the Lifelong Learning project VQTS II*. Vienna: 3s

Mansfield, B. & Schmidt, H. (2001). *Linking Vocational Education and Training Standards and Employment Requirements:An International Manual*. Torino: European Training Foundation

Mandon, N. & Sulzer, E. (1998). *Analysis of Work: Describing Competences through a Dynamic Approach to Jobs*. available at: http://www.eric.ed.gov/PDFS/ED428282.pdf, 01/09/10

Nindl, S., Levreux, M., Wittig, W., Demartini, C., Lanzafame, S., Kohont, A. & Volpato, K. (2010). *VETAS: Methods of setting up occupational profiles and designing qualification processes*. unpublished report

Spöttl, G. (2007). *Work-Process-Analysis in VET-Research*. available at: http://www.itb.uni-bremen.de/fileadmin/Download/publikationen/forschungsberichte/fb_22_07.pdf, 01/09/10

Thiel, G. (2010). *NQF-SQF: Employability grid workpaper*. unpublished paper

Thiel, G. (2010). *Reference Objectives of Occupational Profiles: An EQF-conform functional approach of description*. unpublished paper

NQF-SQF:

Methodological approach for a holistic and functional description of work processes

"This project has been funded with support from the European Commission. This publication reflects the views only of the author, and the Commission cannot be held responsible for any use which may be made of the information contained therein."

Education and Culture DG
Lifelong Learning Programme

6/6

prepared by Gerald Thiel (DEKRA)