



# Reliable and Automated Recognition of HE Qualifications and More – A New IT Approach

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**Abstract:** *The importance of learning outcomes and qualifications frameworks during the evaluation of credentials, regarding the processes of recognition of foreign qualifications are tremendous, especially according to the documents and regulations that are in phase of establishment in Europe nowadays, such as Lisbon Recognition Convention. However, more evidence and guidance on practical use of learning outcomes in recognition would be necessary in order to ensure that learning outcomes are considered when evaluating qualifications. The aim of this paper is to provide recommendations for a methodology on how learning outcomes and qualifications frameworks may be used during the recognition of qualifications, thus, fostering easier and simplified recognition procedures leading towards automatic recognition in future.*

**Keywords:** *National Qualifications Framework, European Qualification Framework, Learning Outcomes, Higher Education, Higher Education Institution, European Higher Education Area*

## 1. ROLE OF NATIONAL QUALIFICATION FRAMEWORK AND LEARNING OUTCOMES IN HIGHER EDUCATION AND RECOGNITION OF QUALIFICATIONS

### 1.1. Educational Systems

The results of many studies conducted in the near past indicated that no critical or substantial differences may be found in the education systems and National Qualifications Frameworks (NQF) among countries in European Union. Of course, there are chances of significant differences, especially with countries outside EU or countries applying for EU membership, but this seems to be reduced with the accessing processes and compliances of the domestic regulations with the ones from EU. Higher education (HE) is organized mainly in the structure of three cycles (European Qualification Framework – EQF levels 6-8) as defined by the Bologna Process (there are slight differences in some systems, such as Latvia and UK, having EQF level 5 – short cycle of HE program (120-180ECTS), more focused on the acquisition of professional skills needed in labor market. In general, the workload of first cycle (EQF level 6) studies varies from 180 to 240 ECTS credits, known as Bachelor level studies. Holders of first cycle qualification have access to the second cycle studies in any field of study. Universities (Higher Education Institutions - HEI) may set up additional admission requirements to the applicants or the access is direct (to the same field of master studies/when field is close, differential exams are required to be passed for accessing the study

program). The workload of second cycle (EQF level 7) studies varies from 60 to 120 ECTS credits, and the titles of awarded qualifications varies. To obtain a Master's level qualification in most of the countries in Europe, total workload of studies in first and second cycles should be no less than 300 ECTS credits (5 years of full-time studies). Graduates of the second cycle have access rights to doctoral level studies. Additionally, in most of the countries, long cycle study programs are provided in specific fields such as medicine, dentistry, veterinary medicine, pharmacy etc. (specifically regulated professions). These programs lead to EQF 7 level qualifications (which is practically master level of degree – 300 – 360 ECTS) with direct access rights to doctoral studies (of course, there are some domestic regulations that differs from this, as in UK – the HEI decides about the third cycle students' applications on a higher level). The third cycle (EQF level 8) qualifications are awarded on the basis of original research. Although the nominal length of doctoral studies is three to four years, workload also can vary by country.

### 1.2. National Qualification Framework Systems

All the countries have developed their NQF and practically have already harmonized their NQF systems to the EQF. In almost all of the countries, higher education qualifications are located on EQF 6-8 levels. The scope of all NQF is pretty comprehensive and includes the specific levels of qualifications that are conducted within the education and/or training process of the student. For indication of the particular qualification, level

descriptors are used. They help learners, education and training providers, and employers to position and value a specific qualification in relation to other qualifications. Also, this applies to those awarded in another education and training subsystem or country. Most of the European countries have designed level descriptors for a comprehensive national qualification framework, covering multiple types and different levels of qualifications. This allows the level descriptors to embrace a wide range of institutions, stakeholders and their interests, traditions, cultures and values. Used in terms of fundamental level descriptors are:

- Knowledge (knowledge and understanding and its application, understanding and level of practice);
- Skills (generic cognitive skills communication numeracy and ICT skills);
- Competences (personal, professional, autonomy and responsibility, learning skills etc.).

### 1.3. Learning Outcomes Roles

Learning outcomes (LO) describe what students are able to demonstrate in terms of knowledge, skills, competencies and values upon completion of a course, a span of several courses, or a program. Clear articulation of learning outcomes serves as the foundation to evaluating the effectiveness of the teaching and learning process. As already known, the Bologna Process is focused on pushing students in the process of acquiring knowledge, skills and competences incorporated in their study program, that meet their self-development goals and social needs (professional and personal in the same time) in the best way. Therefore, learning outcomes are the main tool of the Bologna Process for improving mobility, transparency and recognition in the European Higher Education Area (EHEA). Certainly, in this direction are the familiar tools used in the process of mobility and awards recognition years backward, such as ECTS system of evaluation, Diploma Supplement (DS) and quality assurance processes. Practically, LO can be taken as a basis for a common understanding when comparing, assessing and recognizing qualifications offered in different education and qualification systems, needed for HE harmonization at international level.

There are several important aspects regarding learning outcomes, that need to be met in terms of possible comparison:

- How visible are the learning outcomes – necessary information about all the sources (online or others) where the provided learning outcomes are published or are available to be seen and examined;
- How the learning outcomes are defined – necessary information about the author who

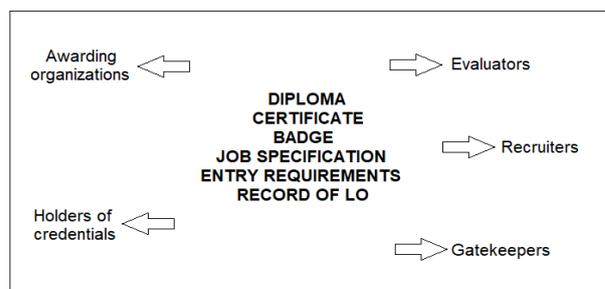
defines, body that approves and/or owns the provided learning outcomes;

- Information whether the learning outcomes are subject to quality assurance – positive or negative reply;
- Information about the terminology of learning outcomes – concepts or categories used when formulating the provided learning outcomes.

Learning outcomes have an important role not only in education process giving precise information about all the qualities that the graduate will earn, but also in the recognition procedures (mobility). There are two categories of learning outcomes that can be analyzed: generic and specific. Researches have shown that generic learning outcomes have broader usage than the specific learning outcomes. Generic learning outcomes are referred to being transversal, soft or social knowledge, skills or competences whereas specific learning outcomes are more related to the particular field or subject of qualification. The most significant differences may be observed in terms of cases when learning outcomes are used and sources of learning outcomes differ by different countries and different education systems. Thus, the conclusion may be drawn that more attention should be paid to clear identification of sources for learning outcomes that may be used in recognition.

## 2. CHALLENGES IN KNOWLEDGE MOBILITY

The recognition of learning across boundaries is urgent and challenging for multiple different stakeholders in the process of knowledge mobility, as shown in figure 1.



**Figure 1.** Knowledge mobility stakeholders

The largest goal to be achieved is automated (as it can be) international recognition, that embraces the need to work with different categories, types and levels of achievement, such as:

- life skills;
- application and responsibility;
- practicing knowledge gained;
- personal autonomy;
- context and systems;
- knowledge;
- skills;
- competences;
- learning;
- know-how etc.

So, this clearly goes above the concept of only knowledge, skills and competencies, into a broader (as it can be) picture of the person, both personal and professional, giving clear information about his ability to respond as qualified for something. Not only the specific skill or knowledge or competence is important, but also the level of achieving it, leading to the measurement of the difference between intended learning outcomes (what a learner is expected to know, be able to do and understand after having completed the learning process) and achieved learning outcomes (represented by the set of knowledge, skills and/or competences the learner has achieved and/or is able to demonstrate after completion of the learning process).

Two different recognition concepts can be analyzed:

- Recognition for the purpose of continuation of education (academic recognition), and
- Recognition for the purpose of professional engagement / employment (professional recognition).

Usually, authorities responsible for the different types of recognition differs on a state level, as well for the process of recognition of professional qualifications.

### 3. NEW IT APPROACH OF KNOWLEDGE MOBILITY AND RECOGNITION

The main purpose is to combine all the data that one study program offers, in terms of learning outcomes, general and specific, together with the graduation system or more general, levels of achievements specific to the countries, into concept that will offer unique way of awarding the learner with a report that will clearly show the quality and quantity of the learned and gained through the learning process, which will be base for further recognition. Since different countries still deals with a tremendously big set of different terms and levels describing the "skillset", there is a need of a translation system (black box) that will give the answer about the quality and quantity of the learner being subject of recognition process.

Thus, countries need an international system (tool) which will be broad enough in the following aspects of functioning:

- Establishment of a common (unique) path for comparison between the achievements and requirements (what we have vs. what we need);
- Detailed enough to be able to match any descriptors and different kind of levels;
- Must be combination of factual information, professional judgements and supporting evidence;

- Has to produce uniform format (for example, report) which will not require any alterations in terms of regional, national or local arrangements (enabling not regulatory).

For this purpose, several broad fields need to be examined in order of creating convergence between the data specific for each field, regarding the need of recognition:

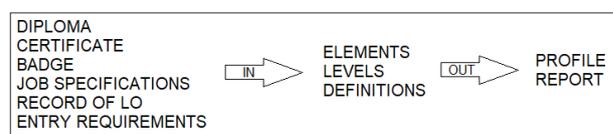
- National qualification frameworks;
- Regional qualification frameworks;
- Sectoral qualification frameworks;
- Competence frameworks;
- Job evaluation systems;
- Job specifications;
- Program entry requirements.

As a result, this system should translate any descriptors (learning outcomes) into internationally recognized form. This is in parallel with the global growth regarding the need to be able to measure everything, such as the kinds and levels of achievement. It should be able to work with any outcome-based structure (qualification, credential, study program, job specification or even framework level). The system should translate them into an internationally recognized form of description which can be used to compare achievements and/or requirements.

UNESCO has developed solid starting system regarding this issue, named World Reference levels (WRLs). It is consisted of:

- 11 (eleven) different ways of describing achievement, which are elements of capability, and
- 8 (eight) different levels of describing the stage of progression, regarding each element of capability (A1 – D2).

The system deals with 51 (fifty one) different indicators of progression.



**Figure 2.** WRL conversing LO inputs in WRL outputs

Because of the common intention for broad usage, the system (should) offers big support to the users in terms of credential descriptors, job specifications or entry requirements in a common and understandable language. Based on the input data, the system produces profile based on the elements of capacity and stages of progression (levels). Also, the system produces a specific report, that contains vital information about any quality assured credential. The way of representation of the outcomes is pretty standardized.

### 3.1. Process Specifics

At the very beginning, starting data for the subject being profiled need to be entered, because of the profiling process. The user needs to make precise parallel between the subject of profiling and the system. Thus, some elements may not be relevant, so they will not be selected. Only the appropriate elements regarding the subject of profiling needs to be selected. The subject of profiling (for example, study program with its structure of qualifications) needs to converge into one or more of the following elements:

- Accountabilities:
  - Activities;
  - Responsibilities;
  - Working with others;
  - Quality;
- Capacities:
  - Skills and procedures;
  - Communication;
  - Data;
  - Knowledge and know-how;
- Contingencies:
  - Context;
  - Problems and issues;
  - Values.

After selection of the elements regarding the subject, for each element the user will have to provide answer to a specific series of questions, each of which is accompanied by a list of possible answers. Many of the terms in the options are linked to a WRL definition in the WRL directory. The appropriate answers should be selected by the user (one or more). The possible answers contain one or more of 51 terms which indicate changes of technical difficulty, scope or autonomy. Practically, they form the final picture (profile and report) of the system. The final report is as shown in the following figure, containing the stage of progress of every different element chosen to represent the subject of profiling.

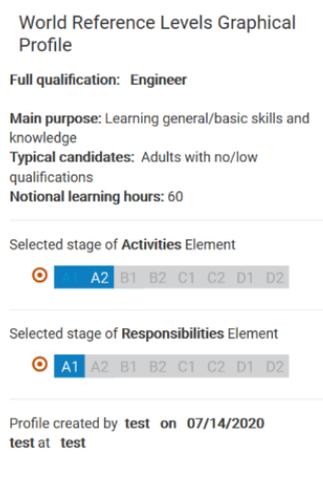


Figure 3. Final report

### 4. CONCLUSIONS AND RECOMMENDATIONS

Conducted analysis on the use of learning outcomes in the process of recognition indicate that states/institutions use generic learning outcomes (more), but not specific learning outcomes. However, the issue of how the learning outcomes of qualifications are used in recognition should be explored in more detail. Therefore, several challenges are identified as regards the use of learning outcomes in recognition, e.g., poorly articulated learning outcomes are subject to interpretation, variety in terminology and phrasing (including the issues of translation of learning outcomes), as well as lack of trustful sources of learning outcomes.

The following recommendations about learning outcomes are provided:

- The structure, formulation of learning outcomes should be improved by creating common guidelines on how higher education institutions (HEIs) should write learning outcomes in relation to the recognition practice. The content of the learning outcomes (topics, themes) would remain at the discretion of each provider.
- The availability of learning outcomes and its sources should be at a high level (and their translation into a commonly language).
- Permanent update relevant institutions and HEIs about the relevance and importance of learning outcomes of qualifications to ensure comparability and recognition of qualifications.
- Permanent level descriptors of NQFs.
- Regular trainings and methodological guidance for credential evaluators about learning outcomes and their use in recognition should be provide.
- Implementing and presenting standardized learning outcome analysis methods and tools to relevant institutions included in the recognition process for their use of analyzing the learning outcomes in recognition.

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