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Network of national qualifications databases

Building trust in skills and qualifications of non-EU countries

Prepared by Anatolii Garmash, Arjen Deij, ETF.

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Improving information and comparability of qualifications

The qualifications landscape is changing, with growing diversity among national qualifications systems. Qualifications frameworks now include not only qualifications offered in formal education and training, but also those developed in the private sector, international qualifications, partial qualifications and micro-credentials (UNESCO, ETF and Cedefop, 2023). Digital solutions are needed to manage this growing diversity and create new opportunities. This will make it easier for individuals to compare and link qualifications to jobs, career or learning pathways. For employers it will be easier to recruit people with the right skills, and for credential evaluators to assess foreign qualifications.

For this to happen, systems must be able to talk to each other, to be interoperable. Countries neighbouring the EU are moving from lists of occupations, occupational standards, qualifications and educational programmes to online databases. Most of them have now published information on

qualifications online, but this information is limited in scope and usability. Many are therefore considering establishing new databases or have plans for their further development (ETF, 2020).

The ETF has launched a strategic initiative, the Network of National Qualifications Databases, to support countries in the EU neighbourhood and Central Asia in developing interoperable databases and readily share information and exchange data on skills and qualifications between non-EU countries and EU Member States.

Dialogues have been initiated with partner countries to encourage them to create the conditions for interoperability of their national systems¹. Countries are encouraged to enrich and structure their data on qualifications based on the European Learning Model (ELM) and to use the European classification of Skills, Competences and Occupations (ESCO) in describing related skills and occupations to ensure that data is comparable.

Why focus on qualifications databases?

Qualifications databases provide more trust in qualifications

Information on qualifications can take different forms, such as qualification or assessment standards, or education and training programmes. Qualifications can be developed based on occupational profiles or educational standards. They are often broken down in units or modules. A qualifications database can be used to store and link these different data and allows users to access them directly.

Credentials, like diplomas or certificates, can be issued to individuals digitally based on the data from the database. These digital credentials are more reliable and tamper-proof, and easier to share. This will strengthen public trust in the value of qualifications.

Databases are key to making NQFs operational

Most of the EU's neighbouring countries have developed and adopted national qualifications frameworks (NQF)². But it is not enough to merely adopt a national qualifications framework. For the NQF to fulfil its functions, the information on the qualifications in the NQF

must be available to the public and easily accessible. By creating a single qualifications database, the country can publish official data on qualifications as the trusted source of information.

¹ The ETF provided consultancy on implementing National Qualifications Databases to Egypt, Morocco, Tunisia, Moldova and Ukraine in 2022 and 2023.

² NQF inventory chapters, [Qualifications | ETF \(europa.eu\)](#).

A growing role for implementing public policies and services for people

The benefits of qualifications databases increase with their level of development, measured in terms of coverage and data quality³. In the early stages, qualifications databases mainly provide a way for public authorities to gather information about qualifications. They also contribute to improving consistency and comparability of qualifications and, furthermore, can increase the quality of the information on qualifications by requiring the use of key data fields, such as those related to learning outcomes as per the 2017 EQF recommendation⁴.

As the coverage and data quality increase, a qualifications database can evolve from a point of access for persons searching for official information about qualifications to a 'comprehensive' point of reference on

qualifications for different purposes, such as qualifications and curricula development, validation of non-formal and informal learning, or for recognition purposes.

Finally, digital processing of information on qualifications speeds up the development and updating of qualification standards and education and training programmes in response to labour market needs, and it allows for new combinations of data and additional applications. These can include, for example, improving connections between initial and further education and training offers, integration with labour market information, career guidance services, intelligent analysis and monitoring the development of skills, qualifications and policy interventions.

Countries neighbouring the EU need to further develop their qualifications databases

The overview of qualifications registers in the countries neighbouring the EU and Central Asia (ETF, 2020) shows that countries are at different stages of development in terms of qualifications databases. Though most of them have national qualifications registers⁵, these vary significantly in the scope and information on qualifications provided.

In most countries qualifications databases are related to a particular educational sector, while only two countries have a national qualifications register covering all NQF levels and sectors. There are also great variations in

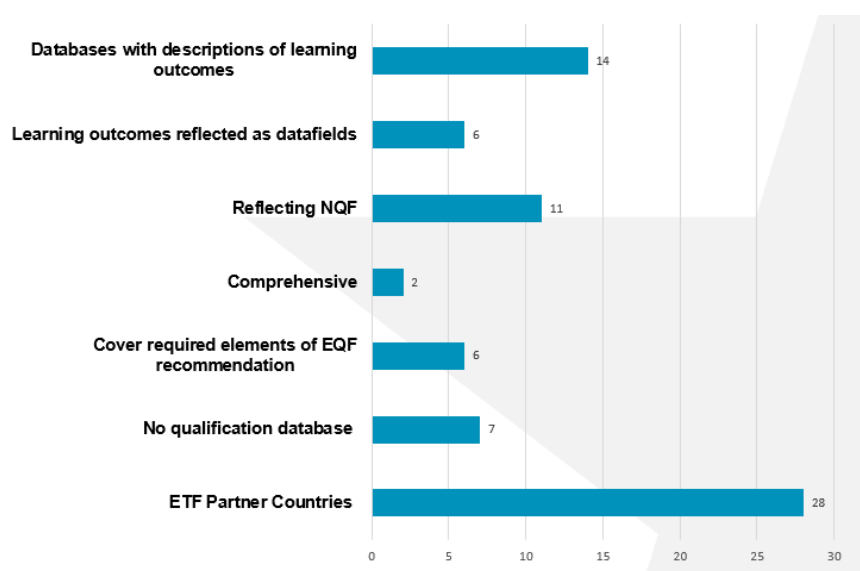
the use of elements or data fields to describe qualifications. Thus, learning outcome descriptions are often not published in the database, or are not reflected as a data field but included separately through attached documents. There are countries that do not publish descriptions of qualifications at all, but have only lists or tables of qualifications, or repositories of standards, educational programmes or descriptions of occupations. Only 11 countries publish information on the NQF level of their qualifications.

³ For publication in the database, the data needs to be reliable, accurate, complete and up-to-date.

⁴ Annex VI, [EUR-Lex - 32017H0615\(01\) - EN - EUR-Lex \(europa.eu\)](#).

⁵ Currently, 21 of the 28 ETF partner countries have some sort of a national qualifications database or register.

DEVELOPMENT OF NATIONAL DATABASES IN ETF PARTNER COUNTRIES (2020)



Significant challenges exist in collecting and centralising qualifications data. In many countries the collection of data is fragmented among different stakeholders and data sources. There is a need for developing appropriate qualifications descriptions for publication in the database and for user-friendly services to search, display and

compare qualifications. Using standardised taxonomies such as ISCO, ISCED-F or ESCO to tag qualifications is not common (ETF, 2023). This diversity presents a significant limitation to the interoperability of databases, and therefore to the comparison and transparency of qualifications across countries.

Using EU experience for qualifications databases

The importance of making data open

Making data on qualifications freely accessible and reusable adds value to qualifications. A growing demand for sharing and accessing information on qualifications requires transparency and collaboration between organisations and countries. Open data⁶ enables information exchange. Publishing

qualifications data as open data allows the creation of tools that use this data for guidance and counselling, skills validation and intelligence, and other services to support individualised lifelong learning and employment.

Using existing European tools for qualifications databases

■ European learning model (ELM)

The European Commission has developed a European learning model (ELM) to link data on qualifications, learning opportunities, programmes, providers, learning outcomes, and assessment and quality assurance processes. It is used as a single standard to describe all aspects of learning, including formal, non-formal and informal learning, in a structured format leaving no room for semantic

ambiguity. The ELM is based on a common structure with the data fields suggested by the EQF recommendation, while enriching it with further elements and properties⁷.

■ European Skills, Competences and Occupations (ESCO)

The European Classification of Skills, Competences and Occupations (ESCO) provides a common reference for skills and occupations demanded in the European labour

⁶ Data that can be freely used and distributed.

⁷ The ELM is built on open standards and linked to existing frameworks and classifications, such as the European Qualifications Framework (EQF), European classification of Skills, Competences and Occupations (ESCO), and International Standard Classification of Fields of Education and Training (ISCED-F). For more details see [Launch of the European Learning Model - A new step for Interoperability in Learning | Europass; ELM Browser \(europa.eu\)](#).

markets. One of the main aims of ESCO is to help bridge the gap between the world of education and training and the labour market.

The ELM uses ESCO to link learning outcome descriptions with information on skills and occupations⁸.

Connecting qualifications databases between countries

Countries that are part of the EQF⁹ have been invited to share information on qualifications with an EQF level and their learning outcomes. The EQF Recommendation of 2017 defined a number of required and optional data fields that countries should use to publish information on qualifications¹⁰. These are the first common elements between qualifications databases, providing a framework for their interoperability.

■ Qualifications Dataset Register and Europass

The European Commission has developed a common infrastructure for member states to share information on qualifications, learning opportunities and accreditations, and for

creating and issuing digital credentials. The Qualifications Dataset Register (QDR)¹¹ serves as a central portal to aggregate and share data from national databases in the ELM format. The Europass platform makes these data available for users to find information on courses and qualifications from the countries linked to the QDR¹². The platform enables the issuing of digital credentials through the European Digital Credentials Infrastructure (EDCI)¹³. Individual users can make a personal e-profile to describe their skills, qualifications and experience, share it with third parties, and use it to find relevant learning or job opportunities¹⁴.

A Network of Qualifications Databases: extending benefits to partner countries

The benefits of databases increase when they become interoperable across countries. The use of a central database (QDR), a common data model (ELM), vocabularies and taxonomies (ESCO, ISCED-F) to link national databases and make them interoperable has allowed a common understanding between different systems and languages in the EU, across all types of qualifications and competences. Building on existing tools, such as ELM and ESCO, we can extend the use of a common data model to connect qualifications databases beyond the EU.

For the EU neighbouring countries, this will give more impetus to operationalise their NQFs and develop new services arising out of qualifications database development, improve understanding of their qualifications in the EU and facilitate mutual recognition and cross-border mobility while supporting the EU policies on legal migration. This initiative would also support EU initiatives such as EQF comparison with third-country NQFs and Skills and Talent Mobility¹⁵ by providing a tool for search, comparison and monitoring third-country qualifications.

⁸ ESCO is built on the International Standard Classification of Occupations (ISCO-08), and it is obligatory for the EU Member States to implement or map it to national classifications of occupations and skills. It is used in job matching platforms (such as EURES), career guidance tools and tools for documenting professional profiles (such as Europass). ESCO is available in all official EU languages as well as Icelandic, Norwegian, Arabic and Ukrainian. For more details, see the [ESCO portal](#).

⁹ 27 EU Member States, European Economic Area countries (Iceland, Liechtenstein and Norway), candidate countries (Albania, Bosnia and Herzegovina, Georgia, Moldova, Montenegro, North Macedonia, Serbia, Türkiye, Ukraine), Kosovo as a potential candidate, and Switzerland. [The European Qualifications Framework \(EQF\) | Europass](#).

¹⁰ Annex VI of the EQF recommendation [EUR-Lex - 32017H0615\(01\) - EN - EUR-Lex \(europa.eu\)](#).

¹¹ [Qualification Dataset Register \(europa.eu\)](#).

¹² The QDR is open to countries that have referenced their NQFs to the EQF. Currently, 19 of the 36 referenced countries have connected their national qualifications databases with the QDR, <https://europa.eu/europass/eportfolio/screen/course?lang=en>.

¹³ [European Digital Credentials for Learning | Europass](#).

¹⁴ [The Europass profile | A tool to help people manage their learning and careers | Europass](#).

¹⁵ [Communication on skills and talent mobility - European Commission \(europa.eu\)](#).

A Network of Qualifications Databases

The ETF has explored the feasibility of establishing a central database, a qualifications hub, to allow the collection of data from the national databases into a single service. The aggregated data from the databases would be available for free reuse. The following functionalities would be integrated into a single service¹⁶:

- searching for qualifications using different parameters (such as key words, country, language, ISCED level, ESCO skill or occupation, field of education and training);
- viewing information on qualifications in a structured format (including a short description, key information, learning outcomes and related skills and occupations);
- obtaining suggestions of similar qualifications (comparable qualifications determined by a set of criteria, such as common ESCO occupations and skills, ISCED or EQF level, or field of education and training);
- comparing qualifications (information collected from the national databases in a structured format);
- intelligent analysis (including monitoring of trends in qualifications development both at national or cross-country level, matching of information on skills, occupations and qualifications).

Source: Proof of concept of the Network of National Qualifications

Open Architecture

To support non-EU countries in developing their own national qualifications databases, the ETF has developed an 'Open architecture' document as guidelines for establishing and managing a comprehensive qualifications database (ETF, 2023). Ensuring interoperability is a core element of these

guidelines. This includes guidance on how to address regulatory, organisational, semantic and technical considerations taking into account the European Interoperability Framework (EIF) (European Commission, 2017). Currently, the ETF is transforming these guidelines into an online training course.

Conclusions and recommendations

The Network of National Qualifications Databases would benefit both the EU Member States and non-EU countries. The Network would make it easier to access information on qualifications and skills from the official national sources and to search and compare qualifications internationally. It will make national qualifications databases of non-EU countries interoperable with the databases of EU Member States, helping to update and develop qualifications and speed up implementation of NQFs in the EU neighbourhood.

The ETF is proposing an integrated solution for the countries in the EU neighbourhood and Central Asia to fast forward the digitalisation of their qualifications systems building on the

European experiences and tools. The EU tools are already applied by a majority of Member States, and there are no technical or political obstacles for non-EU countries to implement these tools.

While the initial work on supporting countries in developing their qualifications databases through donor projects and national initiatives is valuable in its own right, the most value lies in making these databases interoperable nationally and internationally. Countries and European projects will need to avoid investing in national developments that are not interoperable.

Making databases interoperable is not merely a technical issue, as countries need to work on the regulatory and organisational aspects, and

¹⁶ The ETF is developing a functional model for this service. Currently it includes only 12 qualifications for the hospitality sector and supports limited functionality: searching by key words, displaying information on qualifications and searching for comparable or similar qualifications. See <https://etf-qd-dev.cogni.zone/qualification/search>.

create a common language among actors to build or extend their national qualifications database. Regulations on data collection, official data sources and minimum datasets for describing qualifications need to be agreed.

It is crucial that countries structure their data on qualifications in commonly used formats

such as the European Learning Model, and use ESCO when they record information on occupations, qualifications and skills within their national databases to support interoperability between the systems and facilitate information exchange with EU Member States.

Key References

Council of the European Union (2017), *Council recommendation of 22 May 2017 on the European Qualifications Framework for lifelong learning and repealing the recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning*, [EUR-Lex - 32017H0615\(01\) - EN - EUR-Lex \(europa.eu\)](#).

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European Commission (2023), *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on Skills and Talent Mobility*, [Communication on skills and talent mobility \(europa.eu\)](#).

UNESCO, ETF and Cedefop (2023), *Global Inventory of National and Regional Qualifications Frameworks 2023*, Volume I, Thematic chapters, [Global inventory of national and regional qualifications frameworks 2022 – Volume I. Thematic chapters | ETF \(europa.eu\)](#).

Useful links

- [A network of national qualifications databases: recognising skills, increasing opportunities | ETF \(europa.eu\)](#)
- The Network of National Qualifications Databases video - [English](#), [Russian](#) and [French](#)
- [Dissemination event on a network of national databases | ETF \(europa.eu\)](#)
- [Launch of the European Learning Model - A new step for Interoperability in Learning | Europass](#)
- Demonstration of Proof of concept of the Network of National Qualifications: Functional Proof of Concept <https://etf-qd-dev.cognizone.com/qualification/search>
- Mockups Demo video <https://www.awesomescreenshot.com/video/17351488?key=d970a53d6a75580a714559ad2abcbfaa>
- [ESCO portal Homepage \(europa.eu\)](#)
- [Europass portal Home | Europass](#)
- [ELM Browser \(europa.eu\)](#)
- [Overview of national qualifications framework developments in Europe 2020 \(europa.eu\)](#)