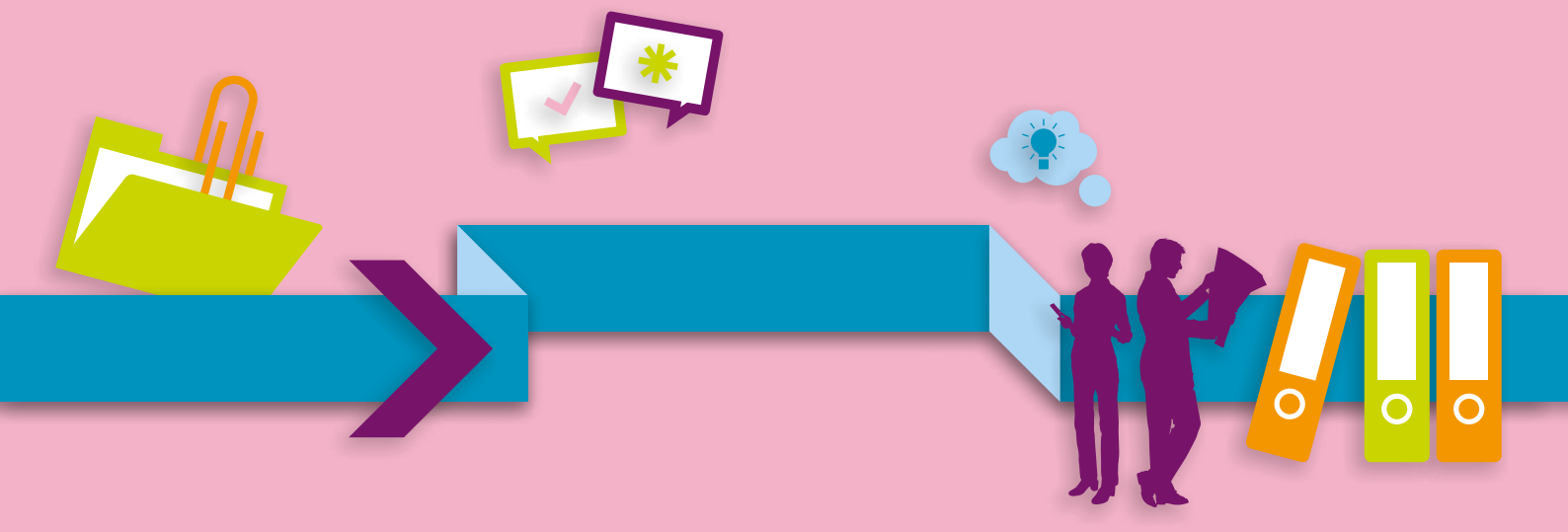
Global Inventory of National and Regional Qualifications Frameworks 2022

Volume I
Thematic chapters



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S H O R T S U M M A R Y

Paving the way to better learning opportunities

Qualifications frameworks are tools for describing qualifications of an education or training system by classifying them into levels. Each level provides a clear description of what the holder of a qualification knows, understands and is able to do. They are important tools for making qualifications transparent and comprehensible, within and across borders, and for promoting lifelong learning.

This fifth edition of *the Global Inventory of National and Regional Qualifications Frameworks* consists of two volumes with up-to-date information, collected in 2020-21, on recent developments in this field destined for policy-makers, educators, researchers, and experts.

- Volume I features a series of thematic chapters that identify emerging issues in qualifications systems, including the digitalization of qualifications systems, the validation of informal and non-formal learning and the increased use of microcredentials. A cross-country analysis of national case studies is presented, examining the objectives, functions and characteristics of national qualifications frameworks and their contributions to wider educational and training systems.
- Volume II compiles case studies from countries across four world regions to record progress in the development and implementation of National and Regional Qualifications Frameworks globally.

The publication is the result of collaborative work between UNESCO, the European Centre for the Development of Vocational Training (Cedefop) and the European Training Foundation (ETF).

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"Since wars begin in the minds of men and women it is in the minds of men and women that the defences of peace must be constructed"

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European Centre for the Development of Vocational Training

Jointly written by the European Centre for the Development of Vocational Training (Cedefop), the European Training Foundation (ETF), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the UNESCO Institute for Lifelong Learning (UIL) and published by UNESCO in 2023.

Cedefop is one of the oldest EU agencies established in 1975 by Council Regulation (EEC) No 337/75. Cedefop helps promote, develop, and implement European Union policies in the field of vocational education and training, skills, and qualifications, collaborating with the European Commission, the Member States, and social partners. It carries out research and analyses and provides knowledge, evidence and services for policy making. The new mandate, in force since 20 February 2019 (EU) No 2019/128, confirms the Agency's development over time and its role at the interface of education and training and the labour market.

The **ETF** is a decentralised, specialist agency of the European Union. We work in the context of the EU's external relations policies helping transition and developing countries modernise their vocational education and training, and employment systems. We currently work with 29 partner countries, supporting them in analysing skills demand and provision, learning from international best practice, and applying innovative approaches to policy making and implementation. In turn, this fosters social cohesion and sustainable economic growth, benefiting EU Member States and their citizens through improved economic relations.

UNESCO's mission is to contribute to the building of a culture of peace, the eradication of poverty, sustainable development and intercultural dialogue through education, the sciences, culture, communication, and information. The UIL undertakes research, capacity-building, networking, and publication on lifelong learning with a focus on adult and continuing education, literacy, and non-formal basic education.

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This Global Inventory of National and Regional Qualifications Frameworks is the result of collaborative work between the European Centre for the Development of Vocational Training (Cedefop), the European Training Foundation (ETF), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the UNESCO Institute for Lifelong Learning (UIL). Katerina Ananiadou (UNESCO) coordinated the preparation of the 2022/23 edition.

The thematic chapters in Vol 1 and national and regional cases in Vol 2 were drafted by Zelda Azzarà, Jens Bjørnåvold, Slava Pevec Grm, Else Husa, Anastasia Pouliou, Iraklis Pliakis, Andreea Rusu, Ernesto Villalba-Garcia (Cedefop); Eduarda Castel Branco, Arjen Deij, Anatolii Garmash, Michael Graham, Maria Rosenstock, and Jolien van Uden (ETF); Katerina Ananiadou (UNESCO); and Marie Macauley and Katie Jones (UIL).

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Finally, this publication would not have been possible without the cooperation of national and regional stakeholders and experts. We are grateful for the extensive support and guidance provided by them, particularly in compiling the national and regional cases of the inventory.

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List of abbreviations

ACQF	African Continental Qualifications Framework
AI	Artificial intelligence
Cedefop	European Centre for the Development of Vocational Training
CVET	Continuing vocational education and training
ECVET	European Credit System for Vocational Education and Training
EDC	European Digital Credentials for learning
EEA	European Economic Area
ELM	European Learning Model
ENIC	European Network of Information Centres in the European Region
EQF	European Qualifications Framework
ESCO	European Classification of Skills, Competences, Occupations and Qualifications
ETF	European Training Foundation
EU	European Union
EURES	European Employment Services Network
GDP	Gross domestic product
GDPR	General Data Protection Regulation
GIZ	Deutsche Gesellschaft Für Internationale Zusammenarbeit GmbH
ICT	Information and communication technology
ILO	International Labour Organization
IOM	International Organization for Migration
ISC	Inter-stakeholder committee (or council)
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
IQS	Integrated Qualification System (Poland)
IVC	International Women's Centre (Netherlands (Kingdom of the))
IVET	Initial vocational education and training
NARIC	National Academic Recognition Information Centres in the European Union
NFQ	National Framework of Qualifications (Ireland)
NQF	National qualifications framework
OECD	Organization for Economic Cooperation and Development
OFW	Overseas Filipino Workers

PQF	Polish Qualifications Framework
QA	Quality assurance
QF	Qualifications framework
RPL	Recognition of prior learning
RQF	Regional Qualifications Framework
RVA	Recognition, validation and accreditation of prior learning
RVCC	Recognition, validation and certification of competences
TQF	Turkish Qualifications Framework
TVET	Technical and vocational education and training
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNESCO-UIL	UNESCO Institute for Lifelong Learning
UNHCR	United Nations High Commissioner for Refugees
VET	Vocational education and training
VNFIL	Validation of non-formal and informal learning
VPL	Validation of prior learning
WRL	World Reference Levels

Introduction

This is the fifth edition of the *Global Inventory of National and Regional Qualifications Frameworks*. As with the previous editions, dating back to 2013, this edition combines in one publication thematic and country research and analysis on NQFs[1] and RQFs.[2] Its authors are experts from the four organizations responsible for publishing the Inventory – Cedefop, ETF, UNESCO and UNESCO-UIL.[3] Its intention is to provide information useful to ministers, officials, authorities, and other actors who must make decisions about NQFs, and to provide a type of peer support, through knowledge dissemination, to experts, NQF project staff and others engaged in designing, developing, and implementing NQFs.

Volume 1 contains the thematic material, comprising a set of chapters on important trends in the development of qualification systems and qualifications frameworks. These chapters explore the salient and emerging issues which shape the development of qualification systems, including NQFs, worldwide. One chapter – a wholly new element in the Inventory – offers a cross-country analysis of the 93 reports compiled in Volume 2.

Volume 2 brings together 93 NQF reports, from 89 countries. These are prepared by the four contributing organizations, which report on developments in the countries they respectively cover. Fulfilling an observatory function, these country reports track, monitor, and assess the progress made by countries in developing and growing their NQFs.

The Inventory's cycle of publication has been lengthened, partly due to the disruption created by the COVID-19 pandemic. But for this edition the authors decided to make a virtue of necessity. Examining the progress of NQF developments over four rather than two years yielded richer material, allowing new trends to reveal themselves and providing space for deeper reflection. The four organizations are now considering whether to maintain this longer cycle. Readers may wish to compare the list of thematic chapters in this edition with those of the previous four, which could well be a useful exercise in its own right. They may also want to map the headline trends identified in 2019 onto those presented here, and onto their own particular national, sectoral, or thematic interests.

Cross-country analysis: A new chapter

A second distinction from previous editions is the inclusion for the first time of a comparative, cross-country analysis of all the country chapters.[4] Here, too, we have been able to exploit the longer period since the previous edition. Undertaking such an exercise had been discussed before by the four organizations but was considered prohibitively lengthy, given the depth of exploration needed to make the operation worthwhile.

1. "[A]n instrument for the classification of qualifications according to a set of criteria for specified levels of learning achieved, which aims at integrating and coordinating national qualifications subsystems and improve the transparency, access, progression and quality of qualifications in relation to the labour market and civil society". *European Qualifications Framework (EQF) Recommendation of 22/05/2017*, Annex I.
2. "A broad structure of levels of learning outcomes that is agreed by countries in a geographical region. A means of enabling one national framework of qualifications to relate to another and, subsequently, for a qualification in one country to be compared to a qualification from another country." *ASEAN Qualifications Reference Framework, A Practical Guide and All you Need to Know.* p. 337.
3. Acronyms not explained in the text are either considered sufficiently well known, or are spelled out in the List of Abbreviations, above.
4. The cross-country analysis was carried out and drafted by Michael Graham, Katerina Ananiadou, Zelda Azzarà, Jens Bjørnåvold, Arjen Deij, Marie Macauley, Iraklis Pliakis, Anastasia Pouliou and Andreea Rusu. Milan Stancic and his team at the University of Belgrade supported the first part of the analysis.

There were two distinct phases in this cross-country analysis. In the first, the four organizations deployed the qualitative data analysis programme MAXQDA 2020[5] to machine-read the reports. This process generated data on pre-coded themes in NQF development, e.g., main NQF objectives, NQF design and structure, types of qualification included, tools used, obstacles encountered, facilitating factors, and so on. In the second, the experts conducted their own, 'human' analysis of a sample of the reports against thirteen research questions. The resulting synthesis forms the basis of the cross-country analysis published here.

Much of the available data is descriptive, addressing issues such as how many frameworks are operating at what stage of progress, who is involved, and what common objectives can be identified. But, crucially, on some issues, we can now confirm with data what had been believed or more generally observed by experts. It is striking to note how advanced many of the frameworks are; 65 of the 93 are now at one of the two more advanced stages ('activation' and 'operational'; see Chapter 1), a higher proportion than had been anticipated. We also find that the comprehensive model for NQFs, in which all types of formal qualifications are covered, as opposed to frameworks catering only to higher education or only to TVET, is overwhelmingly dominant now.

The purpose of this new addition to the thematic section of the Inventory is illustrative and does not attempt to identify causal relationships. However, the authors did observe threads of connectivity between the data on various NQFs' designs, processes, and implementation, for example between speed of progress and governing model used, and the number of frameworks run by agencies or authorities, or by government ministries. There was also a focus on specific characteristics. The number of frameworks sharing these characteristics – particularly the number of qualification levels they include – reveals a degree of convergence around certain models. This is partly due to the presence of regional frameworks, and the desirability of aligning with them at national level. And while regional frameworks and donor projects have triggered the establishment of some national qualifications frameworks, the frameworks in many countries are also becoming more relevant and more effective in their economic and social contribution which, in turn, inspires others.

It is our hope that the inclusion of this cross-country analysis adds value to the overall experience of the Inventory, and we would be pleased to hear readers' views on this. In any case, if future editions include a cross-country analysis, we hope it will cover many of those NQFs we were not able to include for this edition, notably in Latin America and Africa, thus offering a more balanced and inclusive picture of global developments. .

Thematic focus

Following the cross-country analysis, this volume presents four chapters which demonstrate both the ongoing currency of the 2019 edition's thematic focus and the shifting priorities of the intervening period. The impact of digitisation on key aspects of qualification systems and new developments in the recognition of prior learning form the overarching themes in two chapters, while the other two focus on the rise of microcredentials and the validation of non-formal and informal learning.

In Chapter 2, Anastasia Pouliou and Anatolii Garmash examine the emergence of microcredentials as an issue facing those responsible for managing qualifications frameworks, before considering how countries can be supported to develop recognition – and, thereby, increase uptake – of microcredentials. This is particularly timely, given the adoption in May 2022 of the Council of the European Union's *Recommendation on Microcredentials for Lifelong Learning and Employability*, which is framed by a growing acceptance of the value of microcredentials in helping individuals to "fill the gap between their formal education and training and the needs of a fast-changing society and labour market."[6]

5. MAXQDA is a software programme, widely used in social sciences research, designed for qualitative and mixed methods data analysis. It is used to organise, analyse and interpret data sources such as documents, transcripts, surveys, audio-visual material, and so on. It offers coding and memo functions, query tools, visualisation options and reporting tools. See https://www.maxqda.com/.
6. https://data.consilium.europa.eu/doc/document/ST-9237-2022-INIT/en/pdf.

In keeping with the success of a learning outcomes-based approach to qualifications, the authors point out the importance of building on the outcomes of all learning, not just learning which takes place in established institutions of education and training. However, while microcredentials represent an important route for learners to fill gaps in the manner envisaged by the EU Council Recommendation, they also raise significant challenges. For instance, employers may not recognise or trust microcredentials, and, amidst a burgeoning supply, learners may struggle to identify the right microcredentials for their needs. The chapter continues with a detailed look at the current uses of microcredentials at national, regional, and global level, before examining their interaction with national qualifications frameworks. Important considerations include the role of microcredentials in learning pathways; the link between microcredentials and modularisation of VET courses; and the increasing willingness of NQFs to include qualifications gained outside the formal education and training sector.

The rise of microcredentials at European and global level also raises the issue of the tension between stability and flexibility in NQFs. While some countries prioritise stable and dependable qualifications, others prefer the flexibility of facilitating access to qualifications for a wider range of learners and in more diverse forms. This 'dilemma' has already been seen in other, 'alternative' types of qualification. Maintaining stability could potentially reduce the benefits from widespread modularisation. Flexibility offers learners more control, but potentially at the expense of trust. This tension is an important factor in the overall development of qualification and credential systems. Finally, the chapter makes several recommendations for supporting the uptake of microcredentials in the specific context of different countries' qualification systems.

Ernesto Villalba-García and Jens Bjørnåvold explore the validation of non-formal and informal learning (VNFIL) in Chapter 3, from four perspectives – individual, skills strategy, qualification/certification, and methodological. The individual perspective focuses on designing user-centered arrangements. This requires personalised support (including financial assistance), flexibility of processes, access to comprehensive information, and protection of privacy and other individual rights. From a skills strategy perspective, VNFIL requires a coordinated approach because of the role it plays across skills formation systems, employment, and social services.

From a qualification/certification perspective, validation serves as a vital enabler of lifelong learning by allowing individuals to accumulate credentials from diverse sources and contexts. Digitisation, discussed further in chapters 4 and 5, and related developments such as blockchain's distributed ledger technology, paradoxically both disrupt and enhance the value and security of qualification and certification pathways. And, from a methodological perspective, the range of methods used to provide evidence for the outcomes of learners' experiences across all settings must be examined in terms of validity, reliability, scalability, and cost. This chapter represents the beginning of a potentially fruitful dialogue aimed at exploring and extending the benefits of VNFIL among stakeholder groups.

Despite the fundamental transformations brought about by digitisation in so many areas, the once hoped-for 'paperless office' has failed to materialise. However, the paperless qualification system represents a strategic lever with immense potential at national and international level. As Zelda Azzarà and Anatolii Garmash argue in Chapter 4, the use of qualifications databases and the development of connected digital tools can accelerate the achievement of NQFs' main goal – enhancing the transparency, comparability, and portability of qualifications. The possibility for users to have direct and easy access to information on the content of individual qualifications, the advent of digital credentials, and the ability to link information about qualifications with other information, such as learning opportunities or job vacancies, represents a breakthrough with potentially far-reaching implications.

Creating a 'data space' for skills and qualifications, by integrating platforms and systems that connect qualifications to other processes and policies, can help stakeholders understand the complex factors affecting qualification systems and, at the same time, support individuals on the journey they take through lifelong learning. However, while international standards continue to grow in prominence, enabling effective communication and analysis between diverse qualification systems

requires solutions tailored to different contexts, but with common semantic formats for data structuring. This demands extensive trust, cooperation, and coordination amongst stakeholders with, at times, diverging interests. The right mix of global standards, accessible digital systems, and international data mobility – with appropriate safeguards and international cooperation – holds out the promise of an end to fragmented, lengthy, and inefficient paper-based processes. It would also support the ability of qualification systems to remain responsive to changes in the ever-evolving landscape.

The final chapter brings a digital perspective to bear on the critical issue of recognition, validation and accreditation (RVA) of the technical and vocational skills and competences migrants and refugees have acquired in diverse settings. RVA improves their chances of social and economic integration by demonstrating what they can contribute, as they seek access to fair work and further learning opportunities. Looking through three 'lenses' – accessibility, efficiency, and effectiveness – authors Marie Macauley and Katie Jones discuss the use of digital tools for RVA to enhance the inclusion of migrants and refugees in TVET.

After establishing the relevant conceptual underpinnings, the chapter considers how digital tools including e-guidance, e-portfolio development, and e-assessment can increase inclusion, exploring the benefits and challenges of using these technologies in addressing migrants' and refugees' needs. The authors provide a brief analysis of best practices in promoting inclusion through digital tools for RVA and identify a number of challenges, not only in terms of the need for technical expertise, but also the importance of considering cultural appropriateness and managing issues of equity and access.

Since its emergence through the work of the International Labour Organization in the 1970s, RVA has been increasingly associated with the benefits of greater flexibility in learning pathways, whether those pathways run between formal and non-formal learning settings, or between education and training and work, or between different countries. The effective acknowledgement of migrants' and refugees' skills and competences encourages them to seek further learning and/or engage in the labour market, with proven benefits for receiving countries and, in many cases, countries of origin, as well as the individuals themselves. Inclusion of marginalised groups in education and training and the world of work leads to positive economic and social impacts, whereas exclusion – by design or by default – penalises the marginalised themselves and deprives society of their contribution.

Education and training systems need to adapt to the changing skills needs of the labour market, ensuring that upskilling and reskilling opportunities are available to all as part of lifelong learning. They also need to prepare people of all ages to live in a world facing a plethora of global challenges, such as pressing environmental concerns, changing demographics, conflicts and migration, and low levels of trust in public institutions. In this context, the United Nations Secretary General convened the Transforming Education Summit with the aim to transform education as a response to these global crises and to accelerate progress towards the achievement of the Sustainable Development Goals in 2030.

At the time of writing, developments in digitisation are dominated by a rapid increase in the use of artificial intelligence (AI). We note this here because the same technology which underpins all AI-based tools also enables the digitisation of qualification systems. The impact of AI on education and training and the future of work has been the subject of much, and heated, discussion in recent years, and while there is little doubt of AI's potential for good, it requires careful handling. Despite its novel elements, and the headlines they tend to generate, creating equitable value from the use of AI depends on the same fundamental balance between pace of adoption and good governance that will also determine the outcomes of many of the thematic issues relating to RQFs and NQFs discussed in this volume.

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Cross-country analysis

Michael Graham, Katerina Ananiadou, Zelda Azzarà, Jens Bjørnåvold, Arjen Deij, Marie Macauley, Iraklis Pliakis, Anastasia Pouliou and Andreea Rusu

A few words on methodology

This edition of the Inventory maintains the observatory function of the previous four; that is, to track, monitor, and assess how countries worldwide are progressing their NQFs. But there is a new component this time, the cross-country analysis. Previous editions consisted of a volume of thematic reports, and a volume of country reports without any common assessment. In this edition, we wanted to systematically record and describe the goals, functions, and characteristics of NQFs, and evaluate their progress in implementation and contributions to wider education system change or impacts. Therefore, we have added this cross-country analysis to the thematic volume.

Before going any further, we are aware that there are upwards of 140 NQFs globally, at one stage or another of development and implementation. However, there was insufficient information to adequately analyse and compare them all for the present study. For that reason, the sample is tilted towards European and higher-income countries.

We applied a two-stage process of investigation, description, and analysis to the 93 reports available.[7] First, we deployed an analytical software tool[8] which scanned the reports against a set of codes – statements or questions which guide the machine to detect relevant text – to capture, record, and structure data. These codes or questions addressed the principal features of each NQF, namely, stage of development reached, objectives set, design and structure (i.e., levels and columns, governance arrangements, the types of qualifications included, relationship with validation and quality assurance systems, supporting tools such as databases of qualifications), and the most common challenges and most useful enablers encountered in its development.

The results of this coding exercise gave us a picture of the state of NQFs around the world and their

7. From 89 countries, as Belgium and the United Kingdom have three frameworks each.
8. MAXQDA, https://www.maxqda.com/.

patterns of development. For the first time, we have precise data deriving from common criteria and indicators. We know, for example, how many of these 93 frameworks have reached the operational stage; what percentage of them list which aims, such as improving transparency and comparability or closer integration of the different sectors in an education and training system; what percentage have eight levels; what proportion are coordinated by specialised qualifications agencies; how many are comprehensive in including all types of formal qualification, and how many of them also accommodate non-formal qualifications; and what are the most frequently-encountered obstacles to progress.

After the machine analysis, we undertook a qualitative analysis. Experts from the four agencies responsible for producing the Inventory selected 23 of the reports, ensuring a broad geographical spread as well as a wide range of technical characteristics and stages of development.[9] We then developed a group of 13 common questions (see Annex), which addressed what we considered to be the principal policy, institutional, and technical issues a country must seek to resolve in designing, developing, and implementing an NQF. Next, we analysed each of the 23 reports against the 13 questions.

When percentages are used in the text, they refer to the 93 frameworks. Most of the individual NQFs we name in this text are drawn from the 23, but we also cite a few other NQFs from the wider sample of 93, to provide evidence for specific points.

Thus, we cover the objectives set for NQFs; try to establish their principal intended and actual function(s) e.g., communication or reform; bracket the commonalities and determine the differences between countries and world regions in design and structure; identify a typology of institutional arrangements for running NQFs; capture the breadth of stakeholders involved in designing or implementing frameworks; describe the range of qualifications included in an NQF; and isolate the contributions of NQFs to qualification system, education and training system, and broader socio-economic policies and tools.

Here, we wanted to go deeper than the descriptive assessment and quantitative results achieved via machine analysis. We wanted to know if the promises of NQFs are being fulfilled, if the investments made by countries are paying dividends. Now seems the right time to investigate, since many NQFs globally are in implementation.

We open by considering the state of play of NQFs around the world. We then move to the range of the motives that countries have in pursuing an NQF – i.e., the objectives they set. Next, and closely related, the functions section examines the primary role policy makers set for their NQF, either communication or reform. Then we explore how the NQF fits its policy environment; how the framework influences education and training in quality assurance, validation of non-formal and informal learning, curricula and standards, and its relationship with policies in employment and other related areas.

Once countries have determined their aims and the main uses of their framework, they design the instrument to advance towards those desired outcomes, so the next section looks at structures of NQFs, the number of levels, and the range and use of descriptors. Governance, institutional arrangements, and stakeholder participation follow. Here, we explore some categories, but allow for variations and exceptions.

Going to the heart of the matter, the next section looks inside the frameworks, namely at the types of qualifications included and the number of frameworks which are comprehensive in scope. We also explore what conditions are favourable to NQF development and, conversely, identify some common hindrances. Finally, we look at how NQFs reach people, and are used – e.g., in recognition – before assessing where, and how NQFs are fulfilling their objectives.

Although we come to conclusions, we are not offering recommendations, given the diversity of countries analysed and their different needs, objectives, and priorities. But we believe that the data generated for this survey, its findings, and our analysis, can still contribute to decisions policy shapers, experts, and stakeholders will take when seeking to progress and implement their NQFs.

9. We would like to stress, however, that this sub-sample of 23 reports is not representative of the full set in the conventional sense of the term. The authors selected them, based to a large extent on their knowledge of developments in different countries and regions, to capture instances of different types of frameworks.

State of play: NQFs around the world

Measuring progress

Experts from the four agencies[10] applied a common benchmarking system to measure the progress of each individual NQF submitted for the analyses. This guide consists of a series of stages, titled, in ascending order, 'explorative', 'design', 'adoption', 'activation', and 'operational'. Each stage has indicators which signal the extent of conceptual evolution, institutional and technical development, and addition of supporting tools and methodologies.[11] Experts uses the associated indicators to determine the stage reached by the respective NQF examined.

Most NQFs are now being used for their planned purposes

Our investigation reveals that 28 of the 93 frameworks are presently at one of the three early stages, namely explorative, design, and adoption.

- 8% are at the explorative stage, meaning initial discussions on policy challenges and the possible ways to address these problems are ongoing; working groups at this stage typically look internationally for examples of good practice.
- 10% are at the design stage. Here, typically, a formal working group has been established. Rationale, scope, and objectives of the NQF have been agreed. Work has commenced on the architecture of the frameworks and its level descriptors.
- 12% are at the adoption stage, in which countries formally adopt the NQF, most commonly via legislation. Usually, too, at this stage, roles and responsibilities are assigned to stakeholders, sometimes in the legislation or in other official documentation. An implementation strategy has been adopted.

The majority of the NQFs surveyed, 65 of the 93, are now at one of the two more advanced stages, namely activation and operational.

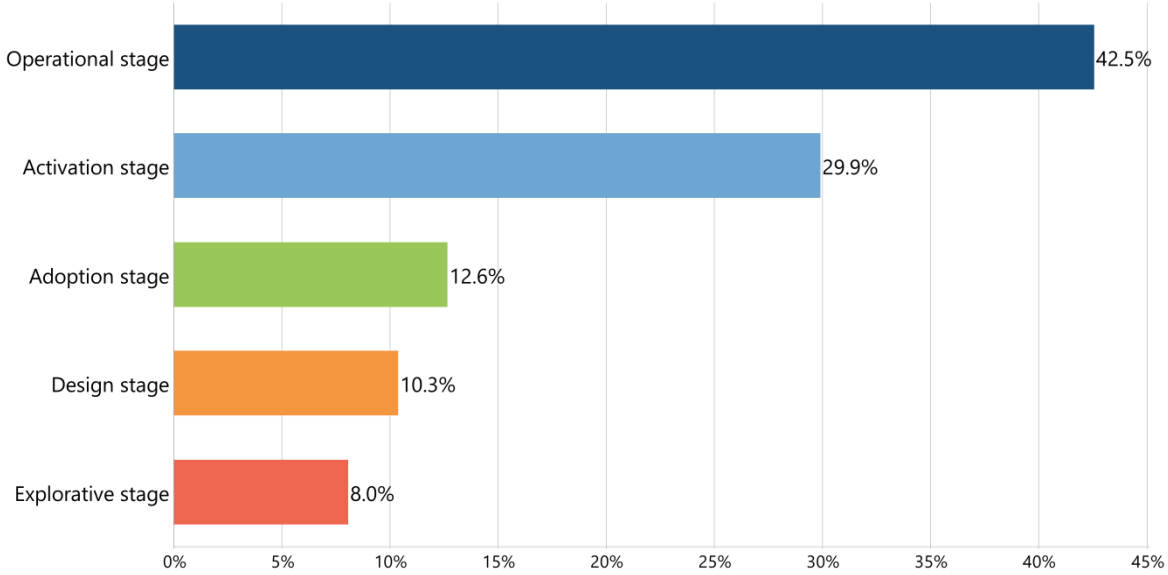
- 30% are at the activation stage, signifying that stable governance structures and day-to-day administrative capacities are in place; QA arrangements have been developed; and some outcomes-based qualifications are being allocated to levels and are available for use via registers. During this stage, we see the gradual but distinct shift from an internal focus on the design and adoption of the framework, to an external focus where end users such as learners, providers, workers, and employers are addressed.
- 43% have reached the operational stage. By operational, we mean that they have adopted the NQF; they include outcomes-based qualifications; their governance arrangements are settled and functioning; they place qualifications in a register or database; and the certificates and diplomas bear NQF levels. Here, the NQF is fulfilling one of its key intended functions, improving transparency and comparability.

Such figures say that frameworks are either already delivering on their intended functions and contributions, or just beginning to do so. We can therefore say that they are being implemented.

Europe has higher numbers and proportions of countries at the activation and operational stages (see Figure 2) than other continents. The Asia-Pacific region is second highest against this measurement. However, as indicated earlier, due to the data available for these analyses, European countries are disproportionately represented. A second factor is that, from 2008 onwards especially, with the establishment of the regional EQF, there was a flourishing of European NQFs before significant numbers of NQFs were established in the Arab states, Africa, and Latin America.

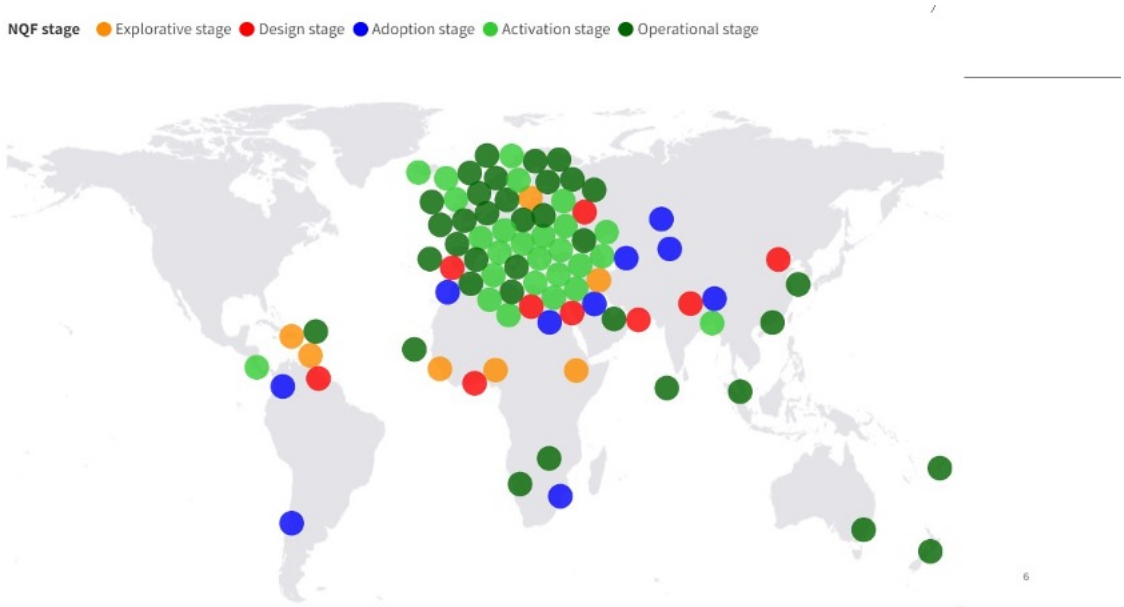
10. Cedefop, the European Training Foundation (ETF), UNESCO and the UNESCO Institute of Lifelong Learning (UIL).
11. Based on Cedefop; ETF; European Commission (2020). *Qualifications frameworks and their development stages* [unpublished]. That guide uses a sixth category 'review', but this is not a further stage of development beyond 'operational', it rather signals that a country has decided to review and revise its framework. For the purposes of this narrative, we are interested how many countries are actually *implementing* their frameworks. Countries at operational stage may be as advanced as those classified, according to the EU guide, as 'review'. Therefore, those classified as 'review' under the guide are here included as 'operational'.

Figure 1. NQF stages reached worldwide



Source: Authors

Figure 2. NQF stage, by world regions



Source: Authors

The RQF to NQF interplay

Internationalisation is a driver of national decisions to adopt and develop NQFs. Two-thirds of the NQFs surveyed were introduced by countries after the establishment of an RQF.

Perhaps unsurprisingly, then, we also found that RQFs exert a sort of gravitational force, causing a degree of convergence in the functions and designs of NQFs. Consequently, those directing NQF developments are often occupied by efforts to align their framework to an RQF for compatibility. In its most obvious form, this results in countries introducing an NQF that links to the RQF level to level. In Europe, the EQF has sparked mainly 8-level NQFs, while in Africa a 10-level structure is the most popular choice by individual African states in response to the 10-level ACQF.

RQFs influence revisions

After design, countries revising or updating national frameworks already in implementation, or already operational, similarly look to the RQF to inform these later changes. In some cases, this has resulted in major overhauls. France's NQF was one of the world's earliest, yet the perceived advantage of referencing to the EQF, compared to maintaining the old 5-level structure, was such that France moved to modify its framework to an 8-level structure.

Note that the EQF has been influential well beyond the EU, the EEA, or even the European Neighbourhood. For example, Republic of Korea 's authorities closely studied the EQF when developing their own 8-level structure.

Donors

International donors play a major part in the development of some NQFs. Donors include both international, multi-lateral bodies or structures such as the UN and the EU, and bilateral development agencies such as Germany's GIZ or Belgium's Enabel. For example, the Ethiopian and Palestinian NQFs gained early impetus from this external support.

International influence, but national adaptation

Worldwide, NQFs have many similarities. This is no surprise. An NQF is useful as a visible port of entry to a country's qualification system which has to be understood outside that country, so it is an intentional design feature that NQFs are generally made to be internationally compatible. But it is important to observe here that, while the RQF to NQF relationships and donor influence present cases of technical alignment and common goals, they amount to policy learning, rather than policy copying, in the great majority of cases.

So, as we will see in subsequent sections, there are many national differences and adaptations in areas such as design (e.g., sub-dimensions, purpose of level descriptors, objectives); emphasis on the NQF's role; institutional settings; and integration with other policies.

Objectives: Commonality and evolution

Main objectives

Examining the 93 reports, we counted ten main objectives for NQFs, all of which are about improvement in some way. In order of the percentage of reports which mention the objective, these are to:

1. Improve transparency, comparability, and recognition of qualifications (93%)
2. Support lifelong learning, access to qualifications, and permeability of education and training systems (87.2%)
3. Support recognition and validation of non-formal and informal learning (73.3%)
4. Support reforms and raise the quality of education and training (68.6%)
5. Strengthen links between education and the labour market (59.3%)
6. Improve quality assurance systems (51.2%)
7. Ensure closer integration of education and training system (48.8%)
8. Use as an instrument for international alignment (32.6%)
9. Support socio-economic development (19.8%)
10. Strengthen cooperation among different stakeholders (17.4%).

These can be grouped into four categories, concerned with improvement for: (i) Education quality; (ii) transparency and transferability/permeability; (iii) the relationship between education and training and the labour market; and (iv) and international standards.

Of the ten individual objectives, the first – transparency, comparability, and recognition of qualifications – was overwhelmingly the most frequently included within stated NQF objectives across the world. For instance, no low-income country fails to mention it within their documentation. At the same time, transparency is also a priority for those nations which enjoy a higher GDP. In the United Arab Emirates, the intention that NQFs provide a frame of reference and enable all qualifications to be described and compared is established in the QFEmirates objectives.

Supporting lifelong learning, access to qualifications and intersectoral permeability is the next most popular objective. Ghana, for example, states that its framework will "promote and facilitate access to lifelong learning for all, especially operators in the informal sector of the economy".[12]

It is worth noting that while in most world regions transparency and comparability is the most often cited goal, in Latin America and the Caribbean facilitating lifelong learning is the first objective.

The link to the labour market

Certain countries prioritise their NQF's labour market function. India intends that its NQF support re-skilling,

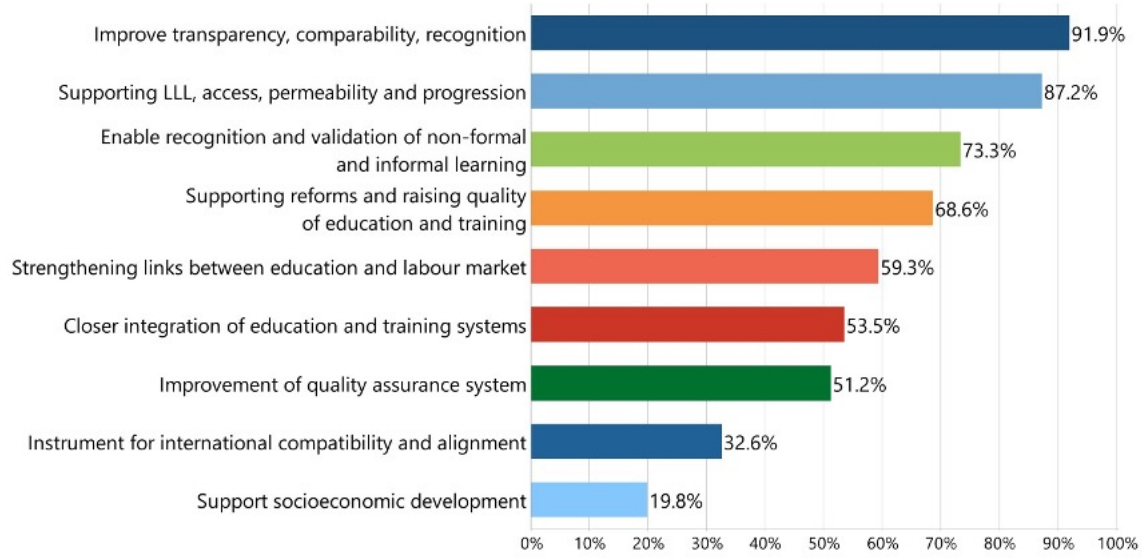
12. Revisiting technical and vocational education in sub-Saharan Africa: An update on trends, innovations and challenges. David Atchoarena and André Delluc. International Institute for Educational Planning/UNESCO (2002).

Table 1. NQF objectives by category

Improvement of education quality	Improvement of transparency and transferability/ permeability	Improvement of the relationship between education and training and the labour market	Improvement for international standards
Support reforms and raise quality of education and training. Improve QA system.	Improve transparency, comparability and recognition. Support lifelong learning, access to qualifications, permeability, and progression. Enable recognition and validation of non-formal and informal learning.	Strengthen links between education and training and the labour market. Closer integration of education and training systems. Strengthen cooperation among stakeholders.	Support international compatibility and alignment. Support socioeconomic development.

Source: Authors

Figure 3. NQF objectives



Source: Authors

via its capacity to clarify and construct pathways between education sectors and programmes, facilitating learning and thus skill acquisition. For Colombia, the introduction of an NQF should enable alignment of education and training to social and economic needs.

Similar intentions can be identified for Kyrgyzstan's NQF, which is oriented to making qualifications from different education and training sectors more transparent and comparable to one another, to better meet labour market needs.

Evolution of goals

We also see that the objectives set for an NQF change over time as the instrument matures. Georgia has moved from the common, general aims we see in Figure 3 to a more defined role as bridge between the sub-sectors of formal education, as well as between formal and non-formal learning. Finnish authorities are now seeking to broaden their framework's capacity to accommodate different types of credentials and qualifications through the inclusion of new competence modules.

New Zealand's current NQF is its third variation, replacing the previous framework established in 1991, as well as the New Zealand Register of Quality Assured Qualifications, introduced in 2001. The revised framework intensifies efforts to streamline the qualification system so that qualifications are better understood by learners, employers, and industry.

Expressing aims through actions

Objectives can be identified not only by examining the text of reports, but also by the actions of the countries. The United Arab Emirates is now converting its ten-level framework to 8 levels, a change designed to ease international comparison of qualifications.

We can also see how objectives are demonstrated through the relationship of the frameworks to their surrounding education and training systems. The Republic of Korea 's KQF, for instance, explicitly states its aim to avoid duplicate learning and guarantee quality by encouraging performance-centred training.

Functions: Communication and reform

Communicate or reform?

Examining objectives of individual NQFs can lead us to categorise them. Earlier literature on NQFs,[13] in addressing the principal function an NQF may seek to fulfil, has identified two broad categories: 'communication', and 'reforming', known respectively as 'loose' and 'tight' NQFs.[14]

Countries may establish communication frameworks to better present their existing qualification system and its qualifications. They can be intended to gather and systemise qualifications in one place, for ease of use by stakeholders, and to make qualifications more transparent (i.e., more easily understood). Countries, usually in the higher-income bracket, with already-settled or established education and training systems, may design an NQF with these limited goals in mind.

A second broad purpose of NQFs is to change things because they do not work very well. Frameworks developed and implemented for this motive are often called reform frameworks. Reform in qualification systems means, among other intentions, remaking the current system to improve the relevance of qualifications to learners and labour markets. NQFs in this category tend to be more regulatory in nature, or at least directive, seeking to drive change. Often, they are found in transition economies, where countries develop and apply several new policies and tools across the breadth of socio-economic policy-making.

Finland offers an example of a communication framework. It uses its NQF mainly to represent the current qualification system, rather than to revise it. Accordingly, the government has not set targets for the framework. Arguably, then, it is less ambitious than some of the other frameworks whose reports we reviewed. That said, the framework does serve to facilitate description of qualifications by outcomes. Related policies and practices to enable transfer and progression, support validation of non-formal and informal learning, and deliver quality assurance, were extant prior to the adoption of the NQF, but are now linked to its implementation.

Reforming qualifications

From the reports covering the transition or developing countries, such as Türkiye, Kyrgyzstan, and India, it is clear that their NQFs are more about reforming qualification systems to produce better qualifications.

In India's case, the NQF is one of several tools being applied to reform education and training in pursuance of the National Education Policy, which contributes to national economic and social development. Within the Indian National Skills Qualification Framework, the linked competence frameworks are expected to align qualifications and curricula with industry skills needs. Occupational standards are the basis of all new VET qualifications.

Kyrgyzstan is using its NQF to recast its qualifications, beginning with the conceptual move to using outcomes to define new qualifications. Through its descriptors, authorities use the NQF as a reference to develop sectoral frameworks, occupational standards, and new qualifications. In this way, authorities intend that the NQF make qualifications and curricula respond more closely and accurately to labour market needs.

13. E.g., Raffe, 2009. Raffe's typology actually identifies three types of NQF – communications, reforming, and transformational. http://www.ces.ed.ac.uk/PDF%20Files/Brief048.pdf.
14. Cedefop, 2008. https://www.cedefop.europa.eu/files/5565_en.pdf.

A matter of emphasis

However, we should avoid rigidly separating NQFs into mutually exclusive categories. Often, we see that distinctions between communication and reform are a matter of emphasis. Indeed, as we saw above, almost all frameworks share at least some objectives aimed at improvement (and thus change or reform) of some aspects of a country's qualification system, for example, increased transparency of qualifications, and supporting lifelong learning.

And it may also be a matter of time, as aims may subtly alter once the framework is a settled part of the policy and institutional ecosystem. Ireland presents such a case. While its framework was initially conceived as a driver towards lifelong learning, it is "Currently... viewed more as an enabler, rather than driver, of wider reform".[15] It has also recently assumed a more regulatory character, as statutory quality assurance guidelines for education and training providers refer to the NFQ, and recent primary legislation strengthened its role as a central coordinating mechanism.

Overall, in these 23 reports, and in the survey of the 93, there is more reform in intention and practice than communication. And none of the NQFs examined here limits its ambitions to simply better presentation.

NQFs in their environments

NQFs in surrounding systems

NQFs – as we have seen in exploring their objectives – are designed to integrate the diverse education and training sectors, build pathways, and generally support lifelong learning. They intentionally, therefore, reach into existing education systems and influence these.

Countries may also set wider objectives for them, notably to better link qualification systems, and education and training systems more generally, to the labour market.

Validation of nonformal and informal learning (VNFIL)[16]

Three-quarters of the 93 reports show that promotion of validation of non-formal and informal learning is an NQF objective. In fact, 85% of countries covered have already initiated VNFIL system development. In most cases, VNFIL is in its early stages but is almost invariably linked to, and driven forward by, the NQF. Most countries began design of VNFIL systems after launching their NQF. Further, validation is eased by the adoption of characteristics of qualifications typically introduced by NQFs, namely outcomes, use of unit-based qualifications and common assessment standards. NQFs also give validation systems visibility. That said, some countries had systems to recognise prior learning before the advent of NQFs, so the two can proceed separately. However, most countries have sought to integrate the two.

Portugal has integrated its system for Recognition, Validation and Certification of Competences (RVCC) into the NQF to better identify applicants' training and guidance needs and facilitate skills assessment. Embedding validation in the NQF gives certificates and diplomas obtained through RVCC the same standing as those obtained by pursuing traditional linear programmes or pathways. The Turkish NQF regulation includes provision for VNFIL, stipulating that all qualifications included in the TQF can be obtained through VNFIL.

In countries where VNFIL is not so advanced, the NQF often contributes to its progress. In Serbia, the NQF law includes procedures for recognition of prior learning based on the standard of qualifications, for qualifications at levels 1, 2, 3, and 5 of the framework.

15. https://www.cedefop.europa.eu/en/tools/nqfs-online-tool/countries/ireland-2020.
16. "[V]alidation of non-formal learning' means the process of confirmation by a competent authority that an individual has acquired learning outcomes acquired in non-formal and informal learning settings measured against a relevant standard and consists of the following four distinct phases: identification through dialogue of particular experiences of an individual, documentation to make visible the individual's experiences, a formal assessment of those experiences and certification of the results of the assessment which may lead to a partial or full qualification." European Qualifications Framework (EQF) Recommendation of 22/05/2017, Annex I.

Quality assurance (QA)

Distinguishing between QA in qualification systems and QA of the education and training system more widely is not easy, though both should produce one common outcome at least, namely trusted and quality qualifications. Two thirds of the 93 reports signal that the relevant QA mechanisms are developed or aligned with the NQF.

We have mentioned the reforming function assigned to NQFs by their coordinators and stakeholders. In such cases, NQFs are consciously deployed to raise the quality of qualifications.

Poland's Integrated Qualification System extends systemic solutions for QA to all qualifications listed in the Integrated Qualifications Register. Formal general, VET, and higher education qualifications, and market and state-regulated qualifications awarded outside formal education, must comply with uniform QA requirements, consistent with European guidelines and standards.

In the United Arab Emirates, all accredited higher education institutions are required to demonstrate how programme learning outcomes are aligned with the NQF. In Georgia, the application of the outcomes approach is stipulated as mandatory in the legislation on quality assurance of education. Authorisation and accreditation standards require clearly defined learning outcomes aligned with the NQF level descriptors. Note that in both cases, the stipulated QA measures focus on implementing outcomes approaches, thereby associating relevance and quality with outcomes.

Countries such as Fiji and Malaysia use their qualifications registers as QA mechanisms, setting criteria to regulate the inclusion of new or revised qualifications on the framework. In Fiji, the providers or qualifications developers have first to be accredited before their qualifications can be placed in the NQF.

NQFs may exercise an especially useful gatekeeping function in ensuring the quality of qualifications which are issued outside the public system. This is particularly the case in France, where the framework is open to a great variety of types of qualifications and developers – public, private, and non-governmental.

In some countries, such as Azerbaijan, Egypt, Lebanon, and Nepal, QA arrangements using level descriptors or outcomes are not yet in place. In Kazakhstan, for instance, accreditation of providers and programmes has progressed, but needs to look more at validating qualifications and assessment procedures with the use of learning outcomes.

NQFs and links with other education and training policies: Standards, curricula, credit

Of the 93 reports, 85% also use NQF level descriptors to define and revise qualifications standards, and to design and update curricula – developing educational standards, learning modules, assessment procedures, etc. For Finland, a survey showed that the NQF has contributed to better embedding of an outcomes approach in course and curriculum design, while in Germany, NQF level descriptors have informed the design of qualifications standards, especially in higher VET. China and Albania are examples of countries where NQFs have been instrumental in facilitating cross-sector credit transfer.

Strengthening links between education, society, and the labour market

Both the technical aspects of NQFs, such as level descriptors, and the social institutions created to run or support NQFs, such as inter-sectoral committees, contribute to closer relations between the worlds of education and work.

Descriptors create a common language or reference among actors. In Ukraine, the NQF has created a platform for dialogue and cooperation among key stakeholders. For instance, the National Agency for Qualifications is an institution of social dialogue, including on its board representatives of ministries and social partners. One of its critical functions is identifying qualification needs in line with changing labour market demand.

At the same time, NQFs are used to promote employability and human capital development, raise productivity, and support social inclusion. An objective of Türkiye's NQF is to promote employability of individuals and contribute to national efforts to reduce unemployment. In Poland, the development of the Integrated Qualification System (IQS) and PQF is considered key to increasing the quality of the nation's human capital. In France,

the objectives of qualification frameworks were linked from the beginning to social justice and combatting unemployment.

Based on the 23 reports we analysed, there are strong indications that NQFs successfully interact with broader education policies, while evidence suggests that, for some countries, especially where the NQF is still in its early stages, linkages with employment and/or social policies are not yet strongly developed.

NQFs often support reforms in education and training, particularly in countries beyond the activation stage. For instance, they are valuable tools for developing outcomes-based qualifications, designing and updating curricula, fostering QA, and structuring systems for validation of non-formal and informal learning.

Better by design: Form follows function

Popularity of 8-level model

All NQFs covered for this analysis comprise a grid of descriptors expressed in learning outcomes. In Europe – EU and non-EU countries alike – 45 of the 51 frameworks examined consist of 8 levels. This 8-level system is dominant because the EQF, an 8-level meta-framework, exerts a strong force of convergence (though the instrument is voluntary) on participating countries.

In the EU's Neighbourhood, the 8-level model is also the most preferred, resulting from conscious decisions or intentions by countries to relate and compare their systems and qualifications to Europe's. In some cases, these countries already have trade and political agreements with the EU, which refer to use by both parties of NQFs and/or the EQF, and so such countries seek to design technical compatibility.

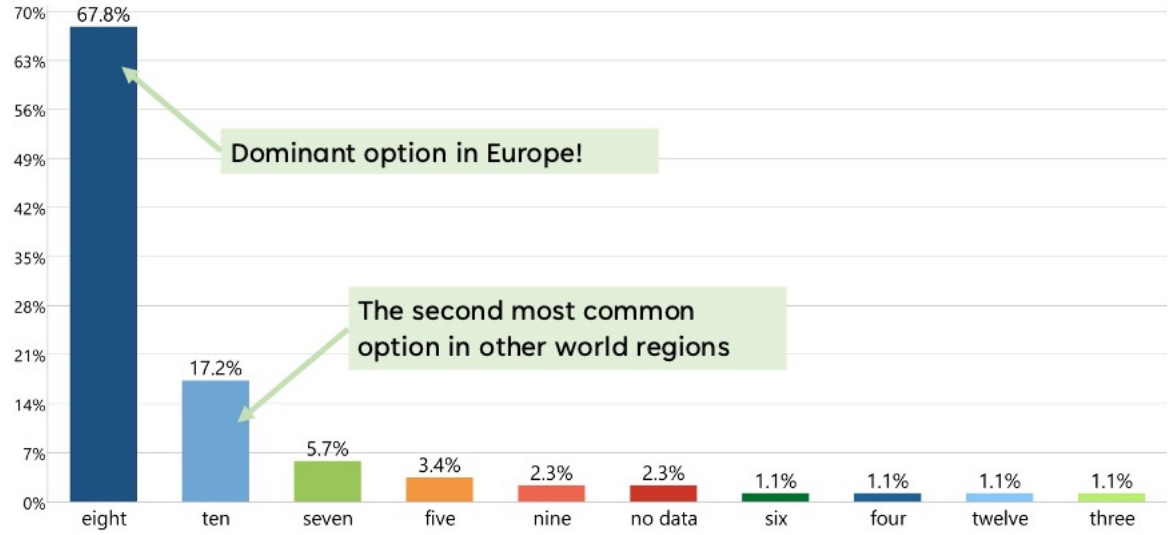
Outside Europe, the 8-level model is common but not dominant. In Asia, for example, six NQFs of those we studied use 10 levels, while five frameworks comprise an 8-level structure. In Africa, 10 levels is the most common model.

Descriptors

While around half of the 93 NQFs analysed operate with three descriptor domains – the most common being knowledge, skills, and competences/ responsibility and autonomy – some countries use a more granular approach, with sub-dimensions capturing particularities or complexities of national contexts. We see most diversity in the competences domain.

A few countries use a larger number of dimensions to describe NQF levels, such as Hungary, which has a separate descriptor for 'attitudes' in addition to the most common three cited above, and Scotland (United Kingdom of Great Britain and Northern Ireland), whose NQF uses five descriptor domains. Morocco has 6 domains of level descriptors.

Figure 4. Number of NQF levels



Source: Authors

Across the 93 frameworks surveyed, there is an apparent similarity in each world region and also between world regions. However, a closer look reveals the differences, which takes us back to the aims or objectives covered earlier in this analysis.

Use or role of descriptors

Examining the wording of the level descriptors can tell us about the nature and use of the framework, alongside the policy documents.

In Ireland, and Scotland (United Kingdom of Great Britain and Northern Ireland), for example, the descriptors provide a common language to allow a comparison to be made of outcomes achieved in different contexts, say in (higher levels of) TVET as against higher education.

Some distinction between countries is detectable in where they place the learner in their scheme of things – frameworks may be more instrumental to serve commercial/state purposes, or more learner/individual focussed.

Germany's NQF places the concept of Handlungskompetenz at its core. Handlungskompetenz goes beyond more narrowly occupational objectives to address the individual's ability and preparedness to act appropriately socially and to be responsible. Further, the descriptors are phrased to accommodate both work and study equally.

Table 2. Number of descriptor domains in NQFs (frequencies and percentages)

Number of descriptor domains	Frequency	Percent
Two	16	17.2
Three	50	53.8
Four	14	15.1
Five or more	6	6.4
No data	7	7.5
Total	93	100.00

Source: Authors

Governing frameworks: Legislation, institutions, and stakeholders

Enabling legislation

Most countries establish NQFs via legislation. Just over half the 93 NQFs in our survey were introduced via specific legislation. In some countries, the framework is proposed as part of wider education and training legislation, while in others, laws, decrees, or regulations addressing the NQF fit within broader legislative programmes covering other socio-economic or labour market reform. Looking again at the reports, how supportive non-NQF legislation is of the NQF is variable. In some countries, such laws and regulations refer to, or take account of the NQF. In others, even where the NQF touches on a neighbouring theme, the relevant legislation ignores it.

Governing structures and arrangements

While NQFs generally share similar objectives, often resemble each other in structure, and have a common basis in learning outcomes, arrangements for NQF governance, including those for stakeholder engagement, are diverse among countries and complex within them. Governing structures, moreover, are rethought and adjusted over time, either as part of wider national institutional reforms or as a result of experience gained from implementing the NQF itself.

Such complexity defies simple categorisation and there is much overlap. There are two broad governing roles; coordination, and day-to-day implementation, and sometimes these functions are exercised by the same institution.

Three broad categories of coordination body can be identified among the 93 frameworks: (i) Ministries; (ii) specialised agencies or authorities; and (iii) inter-stakeholder committees or councils. While ministries are, of course, always present in some form, the advent of NQFs has created new institutional capacities in the form of the second and third of these categories.

The ministry-led model remains the most common, but not majority, coordinating system. In these cases, it is usually the education ministry which leads, or perhaps the labour ministry if the framework is especially VET-oriented. Or it can be an inter-ministerial group which includes the ministries for education, labour, and social policy exercising joint coordination.

Specialized agencies or authorities, either set up specifically to develop or implement the NQF or combining the NQF coordination role with other functions, is the second broad category. Examples are Portugal's National Agency for Qualifications and VET, and the New Zealand Qualifications Authority.

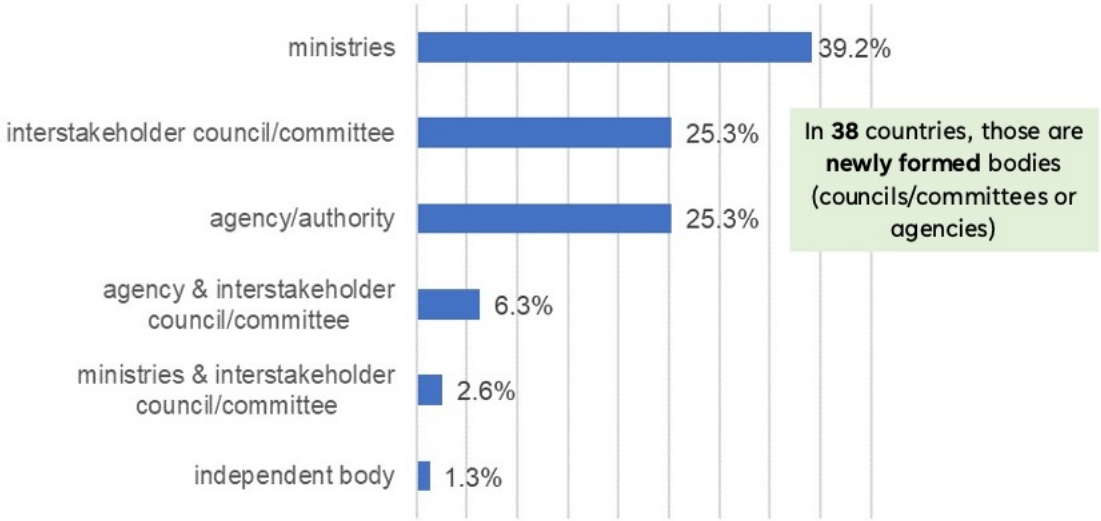
The third broad category is the inter-stakeholder committees or councils, or ISCs. Poland is an example, where the Ministry of National Education retains responsibility for overall coordination of the NQF but is advised by a broad-based Stakeholder Council which exercises monitoring and advisory functions. The Council includes representatives of the Ministry, the Central Examination Board, education and training providers, employers, trades unions, associations of higher education institutions, commercial training institutions, local government, and representatives of learners.

Another case is Albania, whose NQF is driven forward by the AQF taskforce. It is co-chaired by the Ministry of Education and the Ministry of Finance, and includes representatives from the National Agency for VET and Qualifications, higher education institutions, training providers, employer organizations, and trades unions. Again, there is complexity here, as the Polish and Albanian arrangements are still quite different from one another.

These ISCs primarily aim to bridge the worlds of education and training and labour, and encourage broader social investment in, and ownership of, NQFs. Still, the membership of these committees or councils remains dominated by people from the public institutions, usually the ministries, followed, in descending order, by representatives of education and training (e.g., schools and colleges), the labour market, then the non-government sector, and, lastly, international bodies and consultants.

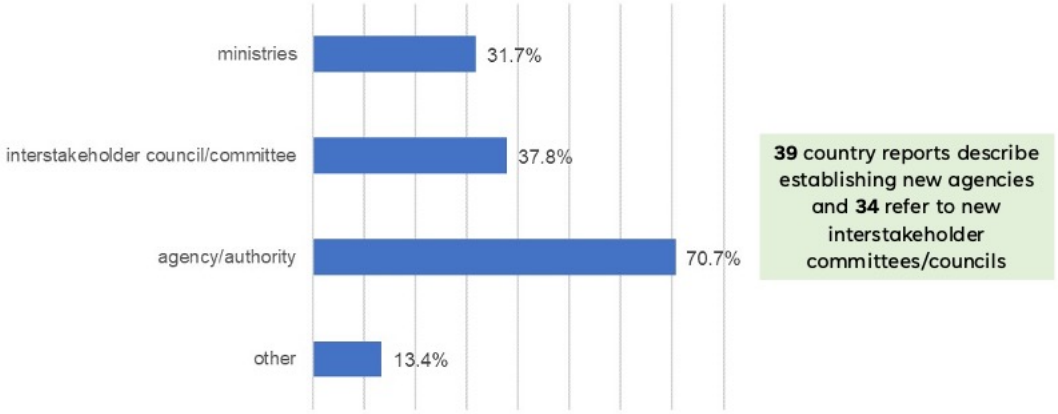
Our analysis has revealed a shift in the pattern when it comes to approaches to day-to-day running or implementation of frameworks, with specialised agencies and authorities, rather than ministries,

Figure 5. Lead/Coordinating institutions or bodies



Source: Authors

Figure 6. Institutions supporting implementation of the NQF



Source: Authors

performing implementation roles in nearly two out of three countries. Serbia's Qualifications Agency is one such implementing body, while the National Qualifications Framework of Serbia Council exercises strategic management of the NQF's development and implementation.

Governing systems and NQF stage

There seems to be a correlation between stage reached and governing system used. Early-stage NQFs are usually ministry-led, while among those NQFs which have reached the activation and operational stages, a higher number is run by dedicated agencies or authorities, or inter-sectoral bodies. Another finding is that the more advanced the NQF, the more frequent the incidence of fusing both coordination and day-to-day running or implementation roles. Currently, about a third of NQFs are run in this way.

Engaging stakeholders via dedicated platforms

We have already mentioned the inter-sectoral committee system of governance, which seeks to expand the range of those influencing frameworks of qualifications. While those bodies coordinate and implement, we also looked at the mechanisms used by the authorities to engage stakeholders who are the framework's intended beneficiaries, to secure their contributions to the NQF and its outputs so that qualifications are of greater quality and more relevance to learners, the labour market, and society.

We found three broad approaches: Representation of all key stakeholders on the governing board of the managing body; sector councils or committees representing the different occupational areas; and consultation procedures to enable exchange of views by a wider spectrum of stakeholders. These are quite diverse systems or methods, of course. The first two are cases of more institutionalised engagement of people or bodies, the third is a process, and therefore implies a role without advisory or decision-making functions.

France provides an example of the first category. Its longstanding NQF is managed by France Compétences, a new national public institution with a quadripartite structure representing the State, the regions, and the social partners (employers and employees). This hosts the NQF secretariat, as well as a new 18-member committee (Commission de la certification professionnelle) which acts as a platform for cooperation between stakeholders – ministries involved in the design and award of qualifications, regions, and employer and employee organizations.

Slovakia provides an example of the sector skills councils approach. The NQF is supported by 24 sector skills councils which play a key role in developing, monitoring, and updating qualifications and occupational and qualification standards, and proposing their allocation to registers and the NQF levels.

For the third model, consultations, these enable a diversity of stakeholders to express their views directly, rather than via representation through the two models above, i.e., the governing boards and sector councils. Consultations can target specific groups or be open to the general public. In addition to the 'professional' stakeholders – such as employers and education and training providers – other stakeholders who can meaningfully contribute to the debate on NQFs include: Learners and

students; teachers and trainers; community and voluntary organizations; representatives of migrants; professional bodies; academic researchers; and career guidance practitioners.

Countries consult at different stages of the development of an NQF. First, before the NQF is adopted, authorities may use consultations, whether with the public or with more specialised categories of stakeholders, for discussions and debates that will inform them about the NQF, and channel their views, needs, and expectations to shape its design and objectives. Then, once it is adopted, they may be consulted on its further development and implementation. Finland's consultation approach has been notable for its extensive reach, to absorb opinion pre-adoption and in subsequent updates or revisions to the framework.

Making frameworks inclusive

Comprehensive NQFs the majority

Most NQFs examined have already advanced enough to include qualifications offered in formal education and training, and most – 82 of the 93 assessed – are comprehensive in nature. That is, they accommodate in the same framework qualifications from VET, higher education, general education, and adult education, rather than limit inclusion to only one of these sub-sectors. Others cover, variously, only higher education or only sectoral or occupational qualifications. Some countries retain separate frameworks for higher education and VET; for example, Ghana's framework covers only VET. A further category is those currently seeking to form a comprehensive model by merging, integrating, or linking existing separate frameworks.

Formal and non-formal

Currently only a minority of frameworks (though a majority of the comprehensive NQFs) includes qualifications developed outside formal public systems. However, there is a growing trend, especially in Europe and Asia, to open frameworks to include such qualifications. It is important to explain what we are talking about here. Terminology varies, but common descriptions are 'non-formal qualifications', 'non-regulated qualifications', 'units' or 'microcredentials', and 'non-statutory (market) qualifications'.[17]

It may be helpful to sound a warning note on microcredentials in particular. From recent studies undertaken by the four agencies, it is not clear that there is a shared global understanding of the term. They may be viewed as being both part of formal education and training and operating outside of it in the labour market. For formal education and training, microcredentials are often seen as being equivalent to existing offers, related to partial qualifications and modules, or as supplementary or even 'add-on' qualifications. Microcredentials that operate outside formal education and training are seen as different types of certificates that confirm specialised and specific knowledge, skills, and competences. International qualifications are also covered in this section, as another type of 'non-standard' qualification.

This survey, and wider experience, suggest there is a causal link between framework maturation and inclusiveness. In other words, as they become operational and settled, they open up to qualifications developed in the private sector, to international qualifications, and to partial

17. Defining non-formal qualifications is complex. It is perhaps more common to hear experts and other actors in the NQF field say what they are *not*, rather than what they are. A very broad definition is "all those qualifications that are not part of the formal education and training system". These might be developed and awarded by labour market stakeholders, adult learning providers, and civil society organizations such as youth and youth work organizations, and voluntary organizations.
UNESCO uses this definition: "Non-formal education mostly leads to qualifications that are not recognized as formal qualifications by the relevant national educational authorities or to no qualifications at all." See: https://uis.unesco.org/en/glossary-term/non-formal-education.
Microcredential: "[T]he record of the learning outcomes that a learner has achieved following a small volume of learning. These learning outcomes will have been assessed against transparent and clearly defined criteria. Learning experiences leading to microcredentials are designed to provide the learner with specific knowledge, skills and competences that respond to societal, personal, cultural, or labour market needs. Microcredentials are owned by the learner, can be shared and are portable. They may be stand-alone or combined into larger credentials. They are underpinned by quality assurance following agreed standards in the relevant sector or area of activity." EU Council Recommendation on a European approach to microcredentials for lifelong learning and employability, 25/05/2022.
International qualification: "[A] qualification awarded by a legally established international body (association, organization, sector or company) or by a national body acting on behalf of an international body that is used in more than one country and that includes learning outcomes assessed with reference to standards established by an international body." European Qualifications Framework Recommendation of 22/05/2017, Annex I.

qualifications and microcredentials. We identify three main NQF features which both signify progress and facilitate inclusiveness. These are: (i) Inclusion of flexible, assessable unit-based qualifications; (ii) links to validation of non-formal and informal learning; (iii) arrangements for access, transfer, and progression of learning pathways, e.g., VET to HE.

In more than half the reports we find NQFs can, in principle, accommodate partial qualifications. Early in its framework's development, Slovakia distinguished between full and partial qualifications. A full qualification entitles the holder to perform all tasks within an occupation, while a partial qualification allows performance of one or a limited set of tasks within that occupation. In Georgia, the revised NQF allows for inclusion of CVET certificates developed in the private sector.

Microcredentials

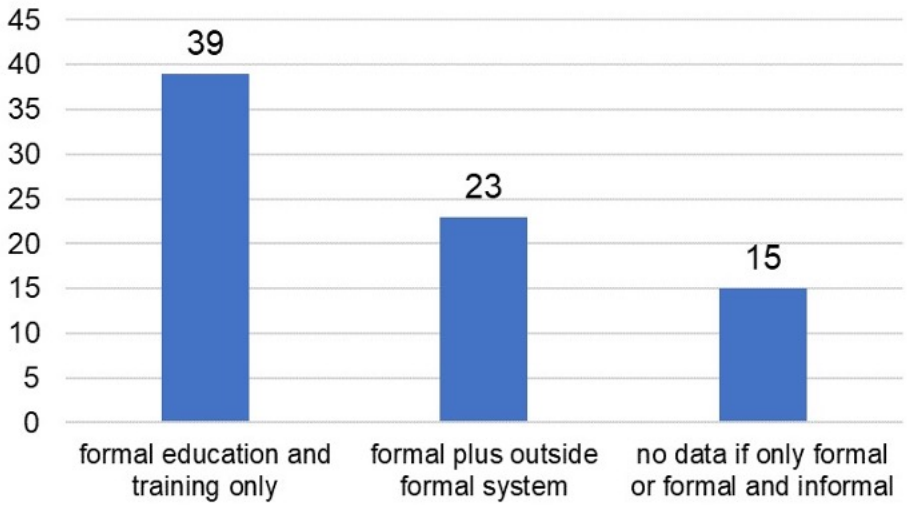
Microcredentials is currently an umbrella term encompassing (open) badges, modules, partial and supplementary qualifications; it is seldom used as such at national level. Two of the 23 reports examined, Ireland and New Zealand, show that microcredentials are levelled in the framework already. Among the full 93 reports machine-read, Malaysia's NQF also already includes them, and some types of awards levelled to Malta's NQF could be considered microcredentials. However, due to the lack of a common conceptualisation of microcredentials among countries, and great uncertainty regarding their definition at national level, it is difficult to be precise about the number of countries that have already levelled them in their frameworks.

In Ireland, while the term is new, the practice is long-established. Short courses and certificates attesting achievement of outcomes in labour market-related education and training programmes date back to 2003. The New Zealand Qualifications Authority has introduced into its framework microcredentials which focus on skill development opportunities not currently catered for in the regulated tertiary education system.

International qualifications

This category includes qualifications developed by international bodies, such as those by the UN agency, the International Maritime Organization, or by corporations such as Microsoft, or international foundations such as the European Computer Driving Licence Foundation (now known as the ICDL Foundation), which develop certification in ICT. Other international organizations offer qualifications in fields as diverse as banking, languages, sports refereeing, and hairdressing. France, Portugal, Netherlands (Kingdom of the), and the United Arab Emirates currently place international qualifications in their frameworks, while Slovakia plans their inclusion. However, for now, few other countries include them.

Figure 7. Inclusion of qualifications from formal and outside formal education and training in comprehensive NQFs (frequencies)



Source: Authors

The future

We can expect future editions of the Inventory to cite more countries including these qualifications in their frameworks, especially microcredentials, and to see more specific examples of them listed. Poland, Finland, the Netherlands (Kingdom of the), and Ukraine are currently consulting or developing proposals. Partial qualifications should soon be part of more NQFs, for example Albania's.

It may appear that in some systems there is a tension between flexibility on the one hand and stability on the other. Increasing modularisation and use of microcredentials requires authorities to adjust NQFs to accommodate these innovations, to ensure the comprehensiveness and coherence of qualification systems and their responsiveness to labour market needs. Some authorities or stakeholders may view the opening of NQFs to a broader range of awarding bodies – e.g., from outside the traditional education and training system – as a further necessary adaptation. Trust is needed, to enable this greater range of qualifications, adapted to the complexity of modern economies and modern lives, to flourish.

Barriers and enablers to implementing NQFs

Designing an NQF may be quick, implementation takes longer

Chile's report might stand for many countries' experiences of the journey of NQF development. The design of a qualifications framework can be relatively quick; however, it may take longer to implement, build trust among stakeholders, and establish its credibility.

Both enablers and barriers might be allocated to the following categories (examples given).

- Political: Policy/political backing, or lack thereof.
- Cultural: A receptive tradition of outcomes, established or not.
- Structural: Links, strong or weak, between education and training systems and labour markets.
- Technical: Presence or absence of supporting methodologies, manuals, guides, and other tools.
- Financial: Money and expertise, sufficient or strained.
- Practical: Dissemination to and awareness by users, or not.

Barriers

In the early development phases, the reports most often mention challenges related to stakeholder engagement. Either there are no stakeholders engaged, or insufficient numbers of them, or conversely, too many stakeholders (implying a need to clarify their roles), which slows decision-making. Stakeholders may also be deterred by the absence of funding to facilitate their participation, or if they are confronted by over-complex processes to engage them. In the adoption stage, stakeholder engagement is the greatest challenge (mentioned in 70% of the 93 reports), followed by use of learning outcomes and establishing QA procedures.

As countries move to implementation they encounter technical challenges, such as levelling qualifications and the complexity of implementing outcomes (e.g., mismatches between qualifications and curricula). Further on, at the operational stage, coordinators and implementers identify low visibility as an obstacle. There is often low user awareness of NQFs, and limited career counselling that uses the NQF to explain options and pathways to learners. Scarce resources, human and financial, are almost ubiquitously identified as barriers.

Enablers

Supportive policy and socio-economic environments are critical in enabling NQFs to take root and flourish. In some countries, for example the pre-accession countries seeking EU membership, the NQF receives impetus from international donors or projects, especially in its early stages of exploration, consultation, and design. Favourable conditions include financial arrangements for implementation and development of the framework, strong economic growth, a higher income level, and high ranking of the NQF in state priorities.

Above, we singled out lack of stakeholder engagement as a major barrier. Of course, the opposite applies when we examine enablers. Where such people genuinely have a stake – i.e., they have an advisory or decisional role – their presence in councils and committees accelerates implementation.

Türkiye is a case where industry inputs to standards, assessment, and qualifications design or renewal processes has ensured that national vocational qualifications are relevant and of quality.

Institutionalisation of such roles is critical. Poland's authorities consider the setting up of the IQS Stakeholders Council in 2016 an important step to ensuring coherent implementation of the framework. This Council's wide membership also ensured dissemination of a common language around outcomes, qualifications, and frameworks. Those countries which drew on donor or project support to kick-start their NQFs usually become more independent as they move through the stages.

Reaching people, adding value

Awareness of NQFs

While NQFs are about helping people in their learning journeys and experiences, and assisting stakeholders such as providers and employers, most authorities running frameworks agree it is not easy to communicate them to their beneficiaries. NQFs are complex, abstract, and often jargon-laden.

In the early stages of NQF development, coordinating bodies tend to concentrate communication efforts at institutional stakeholders such as ministries and QA agencies, and at schools and employers. When a framework is more advanced, its managing body seeks to reach learners or public-facing professionals, such as careers advisers, directly.

Promotion

Registers and databases are increasingly used to support NQF implementation and use. In fact, over 80% of countries from the 93 reports use them, making them the most popular promotional tool. In Albania, a register, the National Catalogue of Vocational Qualifications, is a new tool which supports transparency and visibility of qualifications to the public, providers, and employers in a way which was not available before.

Websites are the second most frequently cited tools. Manuals, guides, training and instructional films, curricula guides, and other sources of technical advice are used to reach specialised or expert users such as qualifications developers or providers.

Visibility to users

Use of NQF and RQF levels on diplomas or certificates is a practical demonstration of the use of the tool, and help to make the framework more visible. South Africa's National Learner Record Database, run by the South African National Qualifications Authority, provides learners and employers with proof of qualifications obtained and provides information that assists with career development and advice.

Uses and users

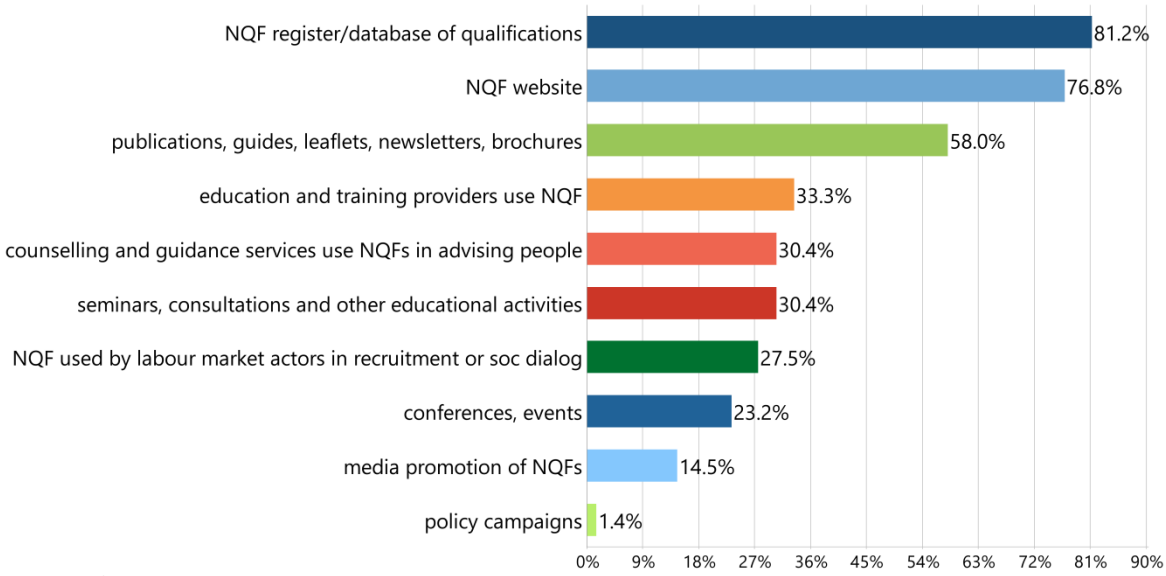
There is growing evidence that a range of stakeholders now use NQFs that have reached the operational stage. For example, NQF levels and outcomes are used by employers and enterprises in recruitment, vacancy descriptions such as job profiles, for employee supervision and evaluation, planning training needs, and so on.

In Ireland, stakeholder penetration by the NFQ is near-total. Among labour market stakeholders in 2018/2019, 96% of employers and recruiters were aware of the NFQ, while 54% of them referred to the NFQ and EQF during recruitment. The Irish framework is long-established, which suggests other frameworks might eventually bear similar fruit.

International

NQFs can support recognition of qualifications across countries. The subsidiarity text to the Lisbon Recognition Convention (UNESCO and Council of Europe, 2013) underlines that frameworks should be used systematically as a source of information supporting recognition decisions. The ENIC-NARIC network has integrated the use of qualifications frameworks in the European Area of Recognition Project Manual for recognition for Higher Education Institutions, which guides evaluators in using QFs to determine the level, in evaluating learning outcomes, in checking QA arrangements, and in understanding the qualification system of different countries. In 49 countries the NQF is recognised as a tool for recognition of foreign qualifications.

Figure 8. Reaching end users



Source: Authors

For example, in Finland, Türkiye, and Greece, bodies responsible for the recognition of qualifications, such as ENIC-NARIC, use the NQF to support recognition decisions. Results from a survey indicate that the Finnish NQF has improved the comparability of the degrees, benefitting especially international student mobility. RQFs such as the EQF play an important role in making qualifications levels comparable. These are indications that frameworks overall are in use and are becoming more operational.

Conclusions

NQFs make a difference: Modernising qualification systems

Identifying impacts and contributions of NQFs

Disentangling the contribution or impact of any policy initiative from other related initiatives is rarely a straightforward case of cause and effect. This is especially so for an NQF, as it is an instrument designed to achieve multiple outcomes through influencing or shaping its surrounding system and related tools in the education and training and employment fields.

Further, countries set different levels of ambition for NQFs. They are social constructs and, as we have seen, an NQF may play a prominent role in promoting change in one country, less so in another. This makes measuring all NQFs using the same indicators a complex business.

There are also cases, such as Finland, Morocco, and the Netherlands (Kingdom of the), where the kind of changes often promoted by an NQF (like the use of learning outcomes-based approaches) were already being pursued before the framework's introduction. In these cases, the NQF may connect and coordinate pre-existing instruments or contribute to strengthening them.

However, some countries' reports include evidence of NQF contributions and impacts, although usually limited and initial. Some changes can be easily associated with the introduction of frameworks, such as the development of national qualifications registers or databases. But these are tools for implementation rather than effects. Indeed, here we encounter another complexity. It is not always simple, when seeking to assess NQFs' impacts, to separate tools or instruments from contributions. Take stakeholder platforms, such as sector skills councils which play a key role in developing, monitoring, and updating occupational and qualification standards. They are arguably both tool and contribution to improvement. They are established as instruments to design and drive change, but when NQFs begin to be implemented, they can bring relevance to qualifications. Overall, it is harder to isolate the contribution NQFs have made to supporting individuals directly, than to any changes or developments in systems or institutions.

Outcomes in qualifications, learning and teaching

That said, we can identify in the reports some changes which can readily be ascribed to the introduction of frameworks. Chief among them is that the conceptual underpinning of frameworks by learning outcomes is used in every NQF covered by this analysis. In some countries, notably those early in establishing NQFs, use of outcomes in areas such as setting targets for learners to achieve by the end of a programme, preceded the establishment of the framework. But in most cases, the NQF has been the driver of adoption of outcomes-led approaches. NQF level descriptors are most obviously used to place a qualification at the right framework level. But they also exercise a profound and global influence on the design and development of qualifications. From the reports we examined, new qualifications themselves are invariably drafted in outcomes. Countries either already have such qualifications in their NQF levels and/or registers, or plan to introduce them.

So, countries are remaking qualifications, using NQFs. Countries also use outcomes to write standards, and to plan and update curricula through educational standards, learning modules, and assessment procedures. Based on the 93 reports, almost 85% of countries use level descriptors for these purposes. Kyrgyzstan is using its NQF to recast its qualifications, beginning with the conceptual move to applying outcomes to define new qualifications. Through its descriptors, authorities use the NQF as a reference to develop sectoral frameworks, occupational standards, and new qualifications.

Finland's NQF has contributed to a firm rooting of the outcomes approach in course and curriculum design. In Germany, NQF level descriptors have informed the design of qualifications standards, notably in higher levels of VET. Portugal has strategically applied the NQF to function as "a driving force behind incorporation of the learning outcomes approach".[18]

Flexible learning

Some countries, including Georgia, Türkiye, and Albania, are working on the modularisation of programmes and curricula. Albania is designing and reviewing 159 programmes using an approach based on competence. In Republic of Korea , the system has been reorganised to ensure learners can achieve qualifications by accumulating credits.

Quality assurance (QA)

Most countries report developing or aligning QA mechanisms with their NQF. For example, in some countries qualifications must comply with QA requirements, consistent with NQF guidelines and standards (e.g., Poland); or education and training programmes are assessed against NQF level descriptors or learning outcomes, as in Georgia, or the United Arab Emirates; or a register of qualifications is used as a QA mechanism, as in Fiji and Malaysia.

Improved relevance and trust of qualifications

In Portugal, the NQF is considered to have improved public trust in the quality of qualifications. In France, registration of qualifications in the national database is seen by the general public as proof of recognition by the state. An impact assessment of Ireland's NFQ reported that 72% of Irish stakeholders participating in the survey considered the presence of VET qualifications in the NFQ signals their relevant skills and competences. In some countries like Ireland, the Netherlands (Kingdom of the), or Malta, labour market actors have started using NQF levels for specifying requirements in employment and/or recruitment.

Institutions and stakeholder platforms

Institutional impacts are also significant, notably the professionalisation of public servants committed to developing NQFs, and in the building of new stakeholder platforms to shape the framework and inform design and development of qualifications. For instance, in Ukraine, legislation designates the National Qualifications Agency as a collegial body, co-founded by government and social partners to strengthen coordination in the field of qualifications.

18. European Inventory of NQF, Portugal 2020, page 6.

In many countries it is likely that, without the NQF, there would not have been such extensive development of institutional capacity aimed at tackling long-standing problems. Traditionally, there has been a gulf between education and the labour market. Mismatch between skills demand and supply has been a major challenge for TVET systems. Sector skills councils or committees enable systematic dialogue between government and social partners or sectoral representatives and harness the collective experience of employers and workers from a sector to address skills gaps and correct imbalances. About a third of the countries analysed have adopted sectoral approaches as a solution to the involvement of stakeholders in qualification and NQF development.

QFs are here to stay

Progress and embedding frameworks

Experience, and other studies conducted by the four agencies, show that institutional robustness and end-user visibility of the frameworks can be assessed. These two factores are necessary conditions for an NQF's stable and continued existence and impact. NQFs must also be linked to education and training and other socio-economic policies. For most of the 93 frameworks examined, legislation specifies their place in national strategies. In all 93 frameworks, NQFs feature in national education and employment/labour market strategies.

As indicated in the State of Play section above, most countries are already quite advanced in implementation. 70% of the 93 frameworks are at the activation or operational stages, and are making good on their declared objectives. A handful have failed to move beyond legal adoption, but the overall picture is one of forward momentum.

Numbers that tell a story

While many of the NQFs we surveyed were established in a relatively quick burst, we can see that the number is now growing more slowly. So, while we have not yet reached 'peak NQF' in terms of numbers, we probably cannot expect very many additions. However, countries with frameworks are focusing on deepening and widening implementation. No country covered here has started developing an NQF and then abandoned it. That tells its own story, as it implies that NQFs do benefit their societies.

To be continued…

The agenda is always moving. Digitalization, migration, increased requirements for proof of validation and demands for recognition, together with broader internationalisation of qualification systems, all now call for responses. We can expect a growing number of comprehensive frameworks and an increasing openness to the inclusion of 'non-formal' or 'non-traditional' qualifications, such as partial qualifications and microcredentials, as well as international qualifications.

It is likely that NQF authorities, as their frameworks become operational, will expend more resource on communicating both with institutional partners in implementation, and with learners. As countries progress their NQFs, more will monitor, formally review, and – sometimes – reshape them.

Annex:

Questions used to guide cross-country analysis

NB: The 13 original questions appear below, along with three additional questions, in square brackets, which are offered as additional potentially helpful prompts.

➤ The WHY: Objectives and orientation

Which objectives do countries set for their NQFs and how do they converge and/or differentiate?

Do NQFs mainly seek to describe existing qualifications (for transparency and visibility) or are they aiming at changing the existing system (for reform and development)?

What qualifications, certificates and credentials are currently covered by the NQFs (public, private, full, partial, micro, international)?

What future coverage of qualifications, certificates and credentials is foreseen?

➤ The HOW: Characteristics and implementation

How do NQFs' designs converge or differentiate across countries and regions?

[To what extent are frameworks based on learning outcomes and how does this influence their characteristics?]

Who is responsible for the day-to-day running of qualifications frameworks and how are they supported institutionally and resource-wise?

[What kind of infrastructures have been established – project based or permanent- organizational/ secretarial?]

Which stakeholders are involved in and/or committed to the development/running of the NQF?

What are the main barriers/challenges and enablers of NQF implementation?

To what extent and how are qualification framework interacting with broader education, employment and/or social policies?

[To what extent and how do NQFs promote the validation of non-formal and informal learning; support quality assurance of qualifications; facilitate the review and renewal of qualifications?]

➤ For WHOM: Influence and impact

Have NQFs (and RQFs) come to stay; how robust, adaptable, and sustainable are they?

What is the added value of frameworks for end-users (individuals, companies, and education institutions); to what extent is this being realised?

Which are the main factors enabling/preventing NQFs to reaching and benefiting end users?

What characterises national, regional, and global developments of qualifications frameworks (bottom-up or top-down; policy copying or policy learning)?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2

Microcredentials in relation to the longer-term evolution of certification and qualification systems

Anastasia Pouliou, with contributions from Anatolii Garmash

Introduction

Qualification systems are changing rapidly across Europe and beyond with the aim of increasing their flexibility, allowing learners to accumulate learning in different settings (at work, at home, among people who are already in work, and among those not currently in work). Qualification systems have undergone significant changes during the last few decades; the shift to learning outcomes, the introduction of qualifications frameworks, and the emergence of arrangements for validating non-formal and informal learning are all creating more flexible systems by opening them to a wider range of individual learning outcomes and experiences. Learners, it is stressed, should be able to benefit from all learning, not only in formal education institutions, but also at work and at home. This requires qualifications to be decoupled from programmes and courses to some extent. The awarding of a qualification should refer to the learning outcomes achieved by individuals, not the location, time, or mode of learning.

While countries differ regarding the number and sizes of different types of qualifications and credentials, there is a growing trend of NQFs opening up to qualifications awarded outside formal education and training, as well as to part-qualifications or skill sets. Most countries have moved in this direction in recent years. These arrangements seem not only to support the ability of learners to enter and re-enter education pathways using different learning venues, but also to increase the transparency and recognition of these qualifications at national, European, and international levels.

The arguments used to support the emergence of microcredentials fit into this broader, evolutionary context. This becomes even more apparent when considering the role of microcredentials in supporting lifelong and life-wide learning, notably by improving the interaction between initial education and training and up-skilling and re-skilling policies and practices. Microcredentials are shaped by the diversity of existing education and training systems. Some of the key shaping factors are related to the signalled value of VET qualifications

as perceived by different labour market stakeholders, the speed and nature of transformation of economic activities across countries, and the composition of the labour force, as well as the national qualifications framework conditions. Their perceived added value is therefore dynamic from a learner, employer, and system perspective.

However, microcredentials often lack the same trust and recognition enjoyed by full qualifications. In terms of how microcredentials might be accommodated within existing qualification systems, there are important questions related to their value and currency. How can microcredentials be trusted when so many are unregulated? How can a balance be achieved between the holistic education provided by full qualifications and the skills-focused learning provided by microcredentials?

Microcredentials are thus seen as offering both opportunities and challenges to qualification systems (see Figure 9).

Countries are already attempting to balance these challenges by implementing standardisation and regulation to ensure comparability, while retaining the aspect of flexibility of credentials. Still, the qualifications and credentials landscape is diverse, and qualification arrangements vary greatly across national and sectoral boundaries.

This chapter has a twofold aim: First, it attempts to identify and analyse the emergence of microcredentials in qualifications frameworks (at national, regional, and global level); and second, it makes recommendations on how countries (at a global level) can be supported for the future recognition and uptake of microcredentials. It draws from the insights of Cedefop's current study on microcredentials,[19] ETF's survey on microcredentials[20] and the data collected from the 2020 NQF country chapters. The chapter could contribute to the European Commission's intention to support EU Member States in developing national measures to implement the Council Recommendation on Microcredentials for Lifelong Learning and Employability.[21]

Figure 9. Challenges and opportunities that microcredentials bring to national qualification systems (Cedefop, 2023)

Source: Challenges and opportunities that microcredentials bring to national qualifications system (Cedefop, 2023)

19. https://www.cedefop.europa.eu/en/projects/microcredentials-labour-market-education-and-training.
20. https://openspace.etf.europa.eu/blog-posts/etf-launching-survey-microcredentials.
21. https://www.consilium.europa.eu/en/press/press-releases/2022/06/16/council-recommends-european-approach-to-microcredentials/.

Analysis and observation of how microcredentials are currently used at a national, regional, or global level

Before describing how microcredentials emerge and find their way into qualification systems and qualifications frameworks, it is important to address the policy context in which this phenomenon currently occurs.

The number of microcredential offerings has expanded substantially in recent years, accelerated by the onset of the COVID-19 pandemic and the green- and digital-economy transitions in Europe. The importance of microcredentials is acknowledged in the 2020 European skills agenda,[22] which calls for an EU approach to this novel learning pathway, recognising the resulting higher demand for digital and related skills. The need for individuals to re-evaluate their career prospects and engage in continuing vocational education and training is even more pronounced in times of economic and social volatility, especially in the face of furlough or redundancy. Of note is the fact that the emergence of microcredentials is related to policies for adult learning, the need for upskilling and reskilling, and for more flexibility in recognising learning. The reference to 'adult learning' in this context is legitimate, as microcredentials are mostly relevant for those who have finalized initial education (either with or without an IVET qualification) and seek up-skilling and re-skilling. This shows a broader tendency towards more modularised and shorter programmes for adults and use of validation processes being stimulated. Still, the way VET for adults is provided and organised depends on long-term historical developments for which the direction of travel is not easily altered. It is difficult to see radical changes in the countries, and policy reforms at a European or global level largely showcase that the systems alter through incremental changes. Changing the qualification landscape is – similar to changing the institutional landscape – a long-term process, requiring multiple subsequent policy reforms, often building on project-based experimentation and close monitoring and evaluation, as evidenced by Cedefop (2023*b*).

As qualification systems interrelate with education systems, the question that arises is whether lifelong learning cultures are being established; or, whether adult learners' needs are really catered for. In this context, microcredentials have come under the spotlight; their main feature is a flexibility in delivery and pace that allows individuals to build their skills portfolio by adding different types of credentials. While the term 'microcredential' may be novel, the activities it encompasses may refer to long-standing practices. As the ETF's survey on microcredentials showed, they are mostly associated with existing credentials that certify

(1) a small learning experience, e.g., up-skilling and re-skilling short courses (both in formal and non-formal settings) or parts of formal education programmes (units of learning, modules), or;

(2) a demonstrated competence, such as professional certificates, certificates of competence awarded by professional or other authorised bodies, and awards certifying validation of non-formal and informal learning.[23]

Delving into the various types of credentials and qualifications developed at national, European, and global level, different terms are used (including digital badges, microcredentials, nanocredentials, minor awards, etc.) to refer to formal VET programmes broken down in smaller units – that can also be taken-up independently – or non-formal programmes or courses and certificates in the labour market. These credentials vary greatly across national and sectoral boundaries with differing approaches to their definition, format, other characteristics and elements of trust.[24] Importantly, microcredentials do not replace traditional qualifications, as confirmed by Cedefop (2022*b*).[25] Instead, they can complement traditional qualifications and serve as a lifelong learning opportunity for all; i.e., microcredentials enable the targeted, flexible acquisition and recognition of knowledge, skills, and competences to meet new and emerging needs in society and

22. https://ec.europa.eu/social/main.jsp?catId=1223&langId=en.
23. Microcredentials are taking off | ETF (europa.eu).
24. According to the interim findings of Cedefop's study, short training and education courses or programmes that comply with characteristics of microcredentials and are accredited and included in NQF are more trusted in the national context. For all other short training and education courses or programmes that comply with the characteristics of microcredentials, the level of trust depends on the quality of the content as well as on issuer, provider, and market success.
25. The majority of the interview respondents that participated in Cedefop's stakeholder group survey (June-July 2021) did not see microcredentials as posing any major threats in terms of replacing or substituting formal full qualifications.

in the labour market. According to OECD (2021), the emergence of microcredentials is perceived as a welcome addition to the higher education landscape, as these programmes help higher education institutions accomplish their mission of supporting lifelong learning. Microcredentials can improve their responsiveness to the needs of employers and learners, as these more targeted programmes allow participants to up-skill and re-skill in a shorter time than traditional degree programmes. Nevertheless, due to lack of common understanding, the establishment of national ecosystems of microcredentials can be challenging.

As long as there are no national frameworks for microcredentials their currency remains one of the major concerns. Although microcredentials exist they are often not recognised, and, after having obtained a number of microcredentials, learners risk ending up with no qualification that is portable. Another risk is the proliferation of microcredentials that are not based on demand, when potentially any existing learning unit of educational programmes or courses can be turned into a microcredential as a marketing tactic.

How do NQFs interact with microcredentials?

In the majority of European countries examined in Cedefop's study on microcredentials, discussions surrounding the topic are at an initial stage. Policy discussions often focus on the role microcredentials can play in better defining and standardising the existing offer within the national qualification system. In cases where discussions are more advanced, these are stimulated by ongoing or completed reforms aimed at allowing wider opportunities in terms of learning pathways (for example, in the Netherlands (Kingdom of the) focusing on higher education,[26] or Poland with the Integrated Skills Strategy[27]). In a few countries, like Estonia[28] and Spain,[29] microcredentials or alternative credentials are referenced explicitly in legal documents (the term 'microcredential' is rarely included per se in strategic, legal, or official documents).

One important development impacting the way in which microcredentials are linked to qualification systems and qualifications frameworks, is the modularisation of VET programmes. Traditional VET programmes that are designed for and lead to a specific qualification have been, or are being, replaced by modular programmes that use sectoral standards, are expressed in learning outcomes, and are grouped into smaller units. Modularisation has the same aims attributed to the use of microcredentials, which are to strengthen the links between training and the world of work and to allow education and training provision to better respond to the demands of employers and other stakeholders. While countries differ regarding numbers and sizes of modules or part-qualifications, most countries have moved in this direction recently. These arrangements seem not only to support the ability of learners to enter, or re-enter, education pathways and combine different learning venues, but also to increase the transparency and recognition of these qualifications at national, European, and international levels.

Another growing trend, especially in Europe and Asia, is of NQFs opening up to qualifications awarded outside formal education and training; e.g., in adult education, and sectoral or occupational qualifications. This reflects the growing trend of NQFs to reach the goal of validating non-formally and informally acquired knowledge, skills, and competences.

26. The policy discussions taking place in relation to microcredentials in the Netherlands (Kingdom of the) focus more on higher education, although they do not neglect the importance of further exploring the applicability of microcredentials within the VET sector. Dutch policies on vocational education and training were revised during the previous term of government (2017-2021). The policies put in place prioritise the creation of more flexible educational programmes and greater possibilities for lifelong learning. The Netherlands (Kingdom of the) has already adapted its qualification structure to create more flexibility by developing basic student profiles and allowing individual parts of the programmes to be chosen (Cedefop, 2023*a*).
27. In Poland, the Integrated Skills Strategy 2030 has the status of a public policy. Although the strategy does not explicitly mention microcredentials, it makes clear reference to the improvement of systemic solutions to facilitate access to various forms of learning and enabling the recognition and certification of learning outcomes, regardless of how these outcomes were obtained (Cedefop, 2023).
28. In Estonia, the topic (under the term 'nanodegree') was introduced in 2019 in connection with the preparation of Estonia's new education strategy 2021-2035. To expand the concept of microcredentials beyond higher education, the Estonian Ministry of Education and Research launched a regulatory process and proposed that the term 'micro-qualifications' be used by all parties as a general, agreed-upon term. The study, entitled 'Possibilities for the Introduction of Micro-Qualifications in the Estonian Education System and Qualifications System Based on International Practice' was completed in May 2021 (https://www.cedefop.europa.eu/en/news/estonia-micro-qualifications-encourage-rapid-competence-acquisition-and-wider-participation-lifelong).
29. In Spain, the Ministry of Education and VET recently passed an Organic Law on VET, which defines and regulates microcredentials as a part of the formal VET system (Cedefop, 2023).

Countries that have opened their qualifications frameworks to qualifications from outside the formal education and training system include Austria, Denmark, France, the Netherlands (Kingdom of the), Poland, Slovenia, Sweden, Scotland (United Kingdom of Great Britain and Northern Ireland), Serbia, and Georgia. Nevertheless, in cases where qualifications from outside the formal education and training system are being introduced into NQFs and linked to levels, it is not clear whether any of these qualifications can be called 'microcredentials'.[30] To illustrate, in Austria non-government regulated qualifications acquired through non-formal learning have been linked to levels since 2020, but Austrian authorities do not consider these qualifications to be microcredentials (Cedefop, 2023*a*). In some cases, microcredentials are seen as equivalent to modules or partial qualifications due to their shared characteristics, so the term 'microcredential' seems to get in the way of discussing important policy developments at a national context.

Microcredentials open the possibility for people to accumulate, or 'stack', different competences which can be documented and recognised by learning providers, employers, sectors, and across countries (Cedefop, 2022*a*). For instance, Latvia's new law[31] allows the accumulation of microcredentials towards a full qualification or to be used as stand-alone qualifications. In Denmark, labour market training courses[32] are well-developed and recognised and could form the basis for initiatives using microcredentials. According to Cedefop's study (2023, *a*), the modularisation of VET facilitates the accumulation and combining of microcredentials. The main preconditions for accumulation would include clear and transparent quality assurance processes, assessment of learning outcomes, recognition of prior learning practices, well-functioning credit transfer systems, links to EQF/NQF levels, and the use of common terminology to describe microcredentials. Microcredentials are understood to represent smaller units or volumes of learning related to a limited and specific area. ECVET seems to have inspired the design of credit systems in a few countries, but there is no general agreement on the number of ECVET points allocated to a unit of learning outcomes or to a full qualification.

Microcredentials should be positioned within the broader system of RPL in the countries examined. In cases where validation arrangements are more advanced, the awarding of microcredentials becomes easier. In addition, it is worth considering microcredentials as a tool to facilitate the RPL process itself. For instance, in Austria, regarding dual VET, exceptional admission to the apprenticeship examination *Außerordentlicher Zugang zur Lehrabschlussprüfung* can be granted upon submitting evidence of having acquired the relevant skills and knowledge outside the formal sector, including through courses. Qualifications as small as five credits, or even smaller, can be aggregated and used in the RPL process as steppingstones towards qualifications in Ireland's NFQ.

Interestingly, the definitional boundaries between microcredentials and sectoral or professional skills certificates seems to be blurred, and industry-recognised or vendor certificates may be considered a subcategory of microcredentials (or vice versa) that enjoy higher visibility, recognition, and trust. Norway exemplifies such a situation, where micro-topics (*mikroemner*) and microcredentials (*mini-kvalifikasjoner*, which translates to 'mini-qualifications') are similar in concept to the broad definition of microcredentials. Microcredentials are commonly used in modular industry programmes, which aim to enhance the development of competences within selected industries (Cedefop, 2023*a*). In addition, competence-based and task-based certificates are usually awarded to acknowledge (as well as to visualise and signal) a person's ability (i.e., that a person has specific knowledge, skills and competences in an occupation, industry, or technology). These types of credentials can facilitate access to the labour market, as they are a way to respond quickly to the need for competences 'on demand'. However, questions remain about which of these certificates could form part of a formal education and training programme.

Overall, we observe a tension between flexibility and stability of qualification systems at European and global level. In countries where the focus is on stable and dependable qualifications, the main emphasis lies on developing and maintaining a coherent, stable, transparent, and predictable system of trusted qualifications. Emphasising flexibility, on the other hand, implies that a wide range of learners should have easy access to qualifications and credentials and that these should be associated with

30. This is because in most countries the relationship between microcredentials and other credentials has not yet been officially defined.
31. https://www.boe.es/diario_boe/txt.php?id=BOE-A-2022-5139.
32. https://www.finduddannelse.dk/soeg/amu-kurser?gclid=EAIaIQobChMI7pnrjvPC9wIVWBkGAB198A49EAAYAiAAEgJM-fD_BwE.

a diversity of learning forms and contexts (Cedefop, 2010). Still, the modularised approach implemented in most countries raises issues for education and training, as it is often considered to challenge the holistic approach to learning and assessing a learner's performance. Flexibility and responsiveness to demand may give learners considerable control over the content and pacing of their acquisition of qualifications, as opposed to a formal regulatory framework. But should this strategy be applied uncritically? While some countries seek stability of qualification systems combined with the durability of qualifications, others seek renewal and change. In yet other cases, when the specificity is in describing the knowledge, skills, and competences needed in the labour market, expectations of qualifications might rise and prove unachievable or even dangerous.

These tensions are key to understanding the development of current qualifications and credential systems. They also illustrate the conflicting requirements to be met and balanced by qualifications and credential systems at national, European, and global level.

Recommendations on the future uptake of microcredentials

Microcredentials do not evolve in isolation and therefore need to be considered in the broader context of national qualification systems – which provide a framework for the recognition of qualifications and, potentially, other credentials – before recommendations on their uptake can be made. Qualification systems are multifaceted, and their reform is usually a complex process (Cedefop, 2010). This means that interaction of microcredentials with existing quality assurance and recognition arrangements, and qualification systems in general, needs to be clarified while developing microcredentialling frameworks.

A detailed understanding of a qualification system is presented in the ETF toolkit (ETF, 2017, p. 11):[33] "A qualification system is everything in a country's education and training system which leads to the issuing of a qualification; schools, authorities, stakeholder bodies, laws, institutions, quality assurance, and qualifications frameworks. All countries have qualifications, so all have qualification systems. Qualification systems are the set of organizational arrangements in a country that work together to ensure that individuals have access to and can choose and obtain qualifications that are fit for purpose, meet the needs of society and the labour market, and offer opportunities for employment, recognition, career development, and lifelong learning."

It becomes evident that a qualification system is not just the sum of qualifications but a complex structure which develops through time. Social and economic policies are factors driving change in qualification systems. In this context, microcredentials are an emerging phenomenon that appears to have the potential to further stimulate qualification systems to adopt characteristics more favourable to supporting the up-skilling and re-skilling of their citizens, and validating their learning independently of the route they have taken.

To establish a sustainable microcredentials ecosystem, it is necessary to put systems in place that ensure microcredentials are quality-driven, updated, accessible, efficient, and reliable. This requires inclusive educational systems that facilitate learning for all types of learners. NQFs could support the creation of an environment conducive to these characteristics, contributing to 'age-neutral' systems for VET (Cedefop & ETF, 2020) and strengthening the focus on up-skilling and re-skilling. As indicated in the European Skills Agenda[34] this entails that microcredentials are supported by guidance and validation, stored and communicated (for instance via Europass) to make learning visible, and that they encourage the take-up of flexible and quality assured courses.

Counselling and guidance services need to be in place to allow end users to receive all related information about microcredentials. Currently, learners lack basic and easily accessible information about which microcredentials are available and how they compare. Identifying the labour market outcomes associated with microcredentials is even more difficult compared to traditional degrees. Online information portals could be established, to explain the offer of microcredentials and their

33. etf.europa.eu/sites/default/files/m/CCC996240000EB1FC1258152003E285F_Qualifications_toolkit.pdf.
34. https://ec.europa.eu/social/main.jsp?catId=1223&langId=en.

links to formal qualifications, as well as links to existing European tools (including Europass, ESCO, competency frameworks, and the Europass digital credentials for learning). The EQF[35], as a European reference framework open to all types and levels of qualifications, could support this process.

Taking into consideration adult learners (in need of up-skilling or re-skilling), or the needs of recognised disadvantaged groups, specific procedures related to the accessibility of microcredentials would be necessary. In this case, recognition of prior learning or learning outcomes obtained outside formal programmes could ensure a learner-centred approach. Whether standalone or complementary, microcredentials – offered across diverse settings – have to be accessible to all types of learners (especially non-traditional learners) to meet their personal, social, or economic needs. Individuals need to have the necessary support to access courses, or assessment and certification processes, without being hampered by financial constraints.

Trust in microcredentials, by all stakeholders, is related to quality assurance arrangements. The EQF Recommendation presents common quality principles for quality assurance and asks EU Member States to ensure that qualifications with an EQF level are in accordance with these principles. However, differences in understanding of qualifications, and in developing and implementing quality assurance arrangements, reflect the deeply embedded social and cultural considerations likely to have existed in national contexts in the past and to have evolved with social change over time. So, clear principles for the accreditation, provision, assessment, and awarding of microcredentials are needed at national, European, and global level.

The proposal for a Council recommendation on a European approach to microcredentials (2021)[36] establishes common EU principles for the design and issuing of microcredentials, calling for the greatest use of existing tools to develop them. In particular, it underlines the importance of assessment[37] in defining microcredentials, as well as their stackability and relevance. Nevertheless, the biggest challenges lie in the role of assessment and the description of learning outcomes for microcredentials. Learning outcomes are considered as facilitating the design, delivery, and assessment of full qualifications, or components of qualifications, so establishing such a common language would make microcredentials more transparent and comparable across national settings.

Conclusions

Developments with regards to microcredentials and their further incorporation into national qualification systems vary substantially between European countries as evidenced by (Cedefop, 2023*a)* study. Concerted policy measures need to be taken at national level, with a long-term perspective, related to recognition and portability of microcredentials (between and within education and training sectors, on the labour market, and across countries). Guidance on microcredentials offer and uptake is needed to balance quality assurance for different types of providers, improve the link between validation and certification of prior learning, and facilitate inclusion of short-form credentials into qualifications frameworks or qualification systems.

Both the supply of and demand for microcredentials seem to be growing, but it is unclear whether this growth matches the growth of stacking, as many of the vocational credentials are stand-alone and not combined with degrees. The challenge for governments, national authorities, education institutions, and private providers is to examine how barriers can be removed so that microcredentials can meet the hopes of their advocates and provide relevant and efficient means of delivering education and skills in the future.

35. OJ C 189, 15.6.2017.
36. https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52021DC0770&from=EN.
37. Assessment is understood as judgement of an individual's knowledge, skills, and wider competences against criteria such as learning outcomes or standards of competence (Cedefop, 2010).

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Exploring validation of non-formal and informal learning from four different perspectives

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This paper builds on notes elaborated for the European Qualifications Framework Advisory Group meetings during 2020 and 2021. The Advisory Group's role is to assist the European Commission in the implementation of the EQF and follow up the Council recommendation on the validation of non-formal and informal learning.

Introduction

The European Union has defined validation as a process of confirmation by an authorising body that an individual has acquired learning outcomes measured against specific standards (Council of the European Union, 2012). It consists of four stages: Identification, documentation, assessment, and certification. These are emphasised differently depending on the purpose of the validation arrangement (Cedefop, 2015). This definition has served to unify a variety of practices in Europe that deal with the process of making learning outside traditional school settings visible, and giving this learning a value (Villalba and Bjornavold, 2017).

Despite the apparent simplicity of the definition, validation as an institutional practice and a policy field is indeed complex as it operates in different contexts, cuts across different sectors and institutional boundaries with different legal and cultural traditions, and is operated by a variety of different actors and practitioners (Villalba-Garcia and Bjornavold, 2022). In each context, the definition and approach to validation will differ and will have different possible outcomes. Validation might be used to create more flexible educational pathways, but it can also be connected to human resource management strategies or civil society Organization activities. It is thus necessary to explore validation, considering the complexity and different perspectives involved.

This chapter presents a possible way of advancing our understanding of issues connected with the implementation and development of validation. It looks at validation from four different perspectives: Individual, skills strategy, certification/qualification, and methodological. The four perspectives can be seen as different lenses, each looking at the same phenomena but focusing on specific elements of validation. Examination of the four perspectives,

separately and in combination, provides relevant insights that are not found using a single perspective. A combination of the four perspectives will help to advance development of validation arrangements and enrich their implementation beyond single, simple solutions.

The individual perspective

The individual perspective refers to the take-up of validation, and how validation arrangements are (or could be) designed or improved by putting the individual at the centre. Although any arrangement will depend on existing political, institutional, financial, and legal arrangements, focusing on the end-user points to a range of specific challenges which must be met for validation to become widely appreciated and used. Making validation a reality for individuals requires that strategies and policies are translated into practical possibilities, to make it feasible for the individual to go through a validation process.

Validation is a personal process that involves individual growth and reflection on past experiences. The richness of individual experiences needs to be considered to realise each individual's full potential. This is not an easy process, at it requires validation procedures to be flexible and adaptable to specific needs and circumstances. Taking into account personal preferences, circumstances, and needs, validation should utilise the most appropriate methods and individuals should receive individualised and personalised support as needed. Validation should fit within a lifelong learning plan, based on a skills assessment that includes customisation of learning offers to the specific competences and learning needs of the individual within their overall career aspirations. Adaptation to the needs of the individual means the process allows for different objectives and purposes.

Covering information needs and exchanged value of validation

For individuals to take advantage of validation of their prior learning, they need to be aware of what validation is, what the process entails, and what it implies to undertake a validation process, both in terms of personal engagement and possible outcomes. Information must be systematically disseminated within and across institutions and sectors so that validation reaches a broad group of potential users, addressing the widest possible variety of needs. Information should be structured in a way which enables individuals at the crossroads of education/training, employment, and civil society activities – and having reached different stages of their learning and employment careers – to judge the relevance of validation. Information flows need to be designed with individuals' needs in mind, and to ensure that information cuts across sectors (education, employment, social services, etc.) and flows through cooperation between institutions and stakeholders at different levels (local, regional, national, and European).

Similarly, to make validation attractive, a systematic effort is necessary to demonstrate and communicate the relevance of all forms of learning – notably at work, at home, or through civic engagement – and how validation directly and legitimately can make that learning visible and relevant for further learning and employment. This means the value of validation should be made clear and tangible to the individual and across society. For validation to be relevant to individuals, the exchange value (currency) of outcomes (identified, documented, and/or certified skills and competences) needs to be clarified. The results of validation must make a difference to further learning (access to education, exemption from parts of education or the award of a qualification) or employment (improving employability, supporting careers, and facilitating job-changes). For the individual to fully utilise the outcomes of a validation process, it is necessary that different stakeholders accept the legitimacy of validation outcomes. The different stakeholders, across institutions and sectors, need to agree on the exchange value of validated skills. Only in this way will individuals be able to utilise validation outcomes in different contexts. This is also necessary to ensure portability and transferability of learning outcomes, so that individuals can make full use of validation outcomes.

Validation standards directly influence the portability and transferability of validation outcomes. For society in general, and relevant stakeholders in particular, to trust validation, standards and reference points need to be open and transparent.

It is of direct interest to the individual candidate that these standards are known to stakeholders in education and employment, making it more likely they will accept and recognise outcomes. Portability and transferability also require that outcomes are presented in a clear and understandable way, signalling what the individual knows, understands, or can do. Using this learning outcomes format makes sure not that only the individual but also future users of these outcomes are able to understand what has been achieved. The learning outcomes format furthermore provides an opportunity to bridge and connect learning in different contexts; at work, in education and training, while volunteering, and so on. National qualifications frameworks can be an important tool to create this bridge between contexts.

Validation, in this way, must be an integral part of education and training, employment, and third sector provisions, assuring a smooth connection between services. The individual might approach validation from different contexts and for different reasons. Validation processes need to be user-friendly, reducing the administrative burden for the individual as much as possible and avoiding fragmentation or duplication of service. In addition, limitations to access validation in terms of age, previous formal education and employment situation need to be reduced or removed, especially at the initial stages of the process, as these constitute the basis on which decisions are made about further steps towards formal certification and recognition.

Importance of providing suitable support

An individual perspective on validation requires adequate and appropriate support to the individual. A first element of support is ensuring coordination with the career or lifelong learning guidance service in different education, work, and civil society settings. Multi-channel guidance provision must be tailored to specific individual needs, considering their level of readiness while serving as a steppingstone in their careers, and be coherent with validation processes. One can distinguish three stages of guidance and counselling in the context of validation (Cedefop, 2019):

- Initial stages of validation, encompassing identification and documentation, can be shared with guidance services
- Support during assessment and certification process is necessary to manage expectations and increase chances opportunities to succeed
- Guidance and counselling for making best use of the outcomes after the validation process.

Guidance practitioners need both a broad understanding of, and a more specialised connection with validation if they are to support the individual during the validation process and produce proof of learning outcomes from the diverse range of learning experiences – and, in turn, to be assessed against agreed standards.

In addition to guidance, individuals need to be able to connect with other services and supporting measures to ensure access to validation and a seamless service. Financing can be a major limitation to accessing validation. From an individual's perspective, financial support needs to be provided, either though demand-driven specific instruments such as individual learning accounts, vouchers, or tax credits (Cedefop, 2022*a*); or supply-driven instruments, financing the institutions that provide validation (see e.g., Cedefop; European Commission; ICF, 2016). Outreach measures for validation need to be connected with social services, public employment services or civil society initiatives. Validation can be truly individualised, and the proper take-up achieved, through its connection to local context, communities, and individual learner circumstances.

Finally, an individual perspective requires that processes are designed and managed in a way which protects the rights and interests of individual citizens. It is important to address principles of privacy, fairness, control of the process (right to appeal, etc.), and ownership of outcomes. Validation procedures should ensure fairness as a function of validity and reliability. This means a suitable and solid validation process will ensure individuals achieve the same results under the same circumstances, and that the methods used to validate their skills and competences are reliable and valid. In addition, these individual rights should ensure the right to appeal a decision, own the outcomes of a validation procedure, and to expect fair treatment of their data in compliance with GDPR principles.

A skills strategy perspective

The second perspective looks at the validation of nonformal and informal learning in relation to lifelong learning and skills formation strategies. Validation requires a coordinated, coherent approach across different policy areas and contexts. For validation to support transfer and accumulation of learning experiences there needs to be a common understanding of its role in skills formation systems, employment, and social services needs. The role and function of validation in different contexts, including civil society activities, needs to be clarified by the relevant stakeholders. After exploring the functions of validation in different contexts, this section briefly summarises main weaknesses in each, and the need to consider validation across contexts.

Validation in education and training

In most European countries, validation arrangements emerged as part of education, training, and qualifications policies (Villalba-Garcia, 2021; Villalba and Bjornavold, 2017). These have significantly influenced the current understanding and design of validation in Europe. The main functions in the context of education and training can be related to:

- Providing access
- Providing exemptions
- Awarding qualifications.

Validation facilitates more flexible access to education and training. Individuals who may lack the formal requirements to access a certain level of education might be granted access based on validation. Through validation it is possible to broaden the student base, providing access to less traditional learners and under-represented groups, such as older students or people from low-income families (Judy, 1999).

Validation can be used to provide exemption from part(s) of an education and training programme, shortening the time spent in education and training. Awarding credits in higher education was among the earliest systematic applications of validation when it first appeared in the US (Willingham, 1976). The modularisation of education and training systems, especially VET, has also contributed to increasing the presence of validation in education and training systems. Similarly, the development of credit systems has facilitated the application of validation.

Validation provides the basis for awarding full or partial qualifications. In some cases, validation might allow for such awards when an individual is able to demonstrate all the learning outcomes required in a particular programme. This might be the case when people have been working in the relevant field for many years and have capacities built on that experience.

Validation in this context, thus, refers to opening up education and training institutions and their qualifications to skills and competences acquired in non-formal and informal settings. The purpose of these arrangements is mainly to ascertain whether a candidate meets the specific requirements set by the educational institution or qualification in question. These arrangements are critically important for opening education and training to a wider range of learners, for including a wider set of skills and competences, and for creating more flexible education pathways. However, there are several important implications to consider:

- Validation arrangements in education tend to be narrowly focussed on a programme or qualification; the full set of skills and competence held by individuals is outside the scope of the arrangement.
- Through validation, educational institutions are becoming 'gatekeepers'; checking whether the non-formal and informal learning at work and in life is up to the standard of learning in formal education and training. This can cancel previous failure by confirming relevant achievement, but it can also reproduce previous experiences, stigmatising learners and perpetuating inequalities.
- The outcomes of validation are, in most cases, locked into a single institution and education sector, and are not transferable beyond the programme or qualification in question.

Validation in the labour market

The identification and documentation of skills is an important common feature of human resource

practices in companies (Cedefop, 2014). Moreover, in the context of public labour market initiatives, public employment services – notably those linked to guidance and counselling services – might be interested in carrying out validation processes to identify and document skills. While only resulting in certification under exceptional circumstances, the identification and documentation parts of these practices are significant and extensively used in many countries. Forming part of private businesses as well as public policies, labour market related validation fulfils a number of functions (Cedefop, 2014):

- Validation is used for recruitment processes, ranking individuals to predict if they will perform well in the company. This may be referred to as validation used for predictive objectives (Andersson, 2021).
- Validation supports employers' training and staff development strategies (Duvekot and Onstenk, 2021). It is used in informal ways to recognise the expertise of staff and allows employers to plan their skills needs.
- Validation can increase staff retention and motivation, as employees might feel valued and supported.
- Validation allows individuals to re-direct their careers and supports re-skilling and up- skilling by reducing their training time, and opening new employment and career opportunities.
- Validation processes support the development of a training map and tailored training offer that adapts to the specific needs of the individual, thus supporting their career progression (Duvekot and Onstenk, 2021).

Validation can thus increase prospects for inclusion and participation in the labour market, while raising labour market efficiency by making skills supply more transparent. In this context, validation can be valuable for individuals, by supporting recruitment and career progression, and for employers, who can retain staff and plan for further skills needs.

Despite the benefits of validation for the labour market, the following shortcomings are evident:

- Existing practices that lead to certification in the labour market remain limited and unstructured.
- Validation arrangements are normally linked to education and training initiatives and are seldom perceived as part of a structured labour market strategy.
- Validation practices in the labour market suffer from a lack of documentation of the identified skills and an absence of common standards.
- The outcomes of internal, company-specific skills and competence assessments can currently be used outside the company only in exceptional cases; but given the rate of job changes in most societies, individuals will increasingly need to make use of these outcomes.
- Public employment services' approaches to validation are frequently limited, focussing on short term employment and training needs.

The European inventory (Cedefop; European Commission; ICF, 2019) revealed a lack of dialogue regarding the potential role of labour market validation in supporting individual learning and employment progression, including how to link this progress with further education and training.

Functions of validation in social policies and civil society activities

As in the case of the labour market, identification and documentation of skills occurs in the context of civil society actions and social policies. Validation supports youth work and volunteering, and is used to add value to these experiences. It can also support wider social policies such as the integration of migrants or refugees. In this context, the main functions of validation can be summarised as follows:

- Validation contributes to the integration of individuals at risk of being excluded, and provides an opportunity to make the most of their experiences and expertise.
- Validation identifies skills and competences on which hard-to-reach and marginalised individuals can build their skill set, to enhance their participation in society.
- Validation is also a process of self-reflection, and tends to increase an individual's self-esteem and sense of agency, motivating them to further

participate in lifelong learning activities and further education.

- Validation plays an important role in making visible learning gained in voluntary experiences, youth work, and civic engagement, especially for young people who lack work experience.

The third sector can also play a major role, however, in outreach measures and recruiting those whose need is greatest. Many social inclusion and third sector actions involve the most marginalised and hard-to-reach groups. Engaging them through identification and documentation of learning they have acquired outside formal education settings can contribute to motivating them and getting them engaged in society.

The functions of validation in social policies and the third sector tend to be quite separate from the standards set by formal actors serving as gatekeepers of education and training. Therefore, the following aspects need to be considered:

- There is a lack of connection between validation arrangements initiated or developed by civil society organizations and other education and training or labour market initiatives.
- Validation processes in the third sector tend to focus on the identification and documentation of skills, lacking connection to formal assessment or certification.
- The set of skills identified through validation tends to be of a different nature and not connected with formal qualifications or occupational standards. This might hinder the usability and transferability of validation outcomes across areas.

The need for transferability across context, institutions, and policies

In order for validation to be effective and unleash its full potential, it not only needs to work coherently within the different contexts presented above, but also to be connected and work with different policies and services across contexts. While access, exemptions, and the awarding of qualifications will still be important in education and training policies, it is necessary to consider the implications of validation in a wider perspective. This includes a better connection with career guidance, to make full use of validation opportunities and to support the individual throughout increasingly non-linear careers. Labour market policies could make use of validation to address both employers' and employees' needs, and promote practices that enable individuals to take stock of their experiences for further learning and advancement. Similarly, connecting validation to activities in civil society, youth, or voluntary organizations, where such activities are not constrained by administrative burdens and red tape, will increase its impact.

However, the validation landscape in Europe presents a fragmented picture, with limited connection between arrangements in different contexts within the same country. While the 2012 Recommendation has contributed to a common understanding of validation and its stages, and countries seem to be moving towards overarching strategies (Cedefop; European Commission; ICF, 2019), there is still a need to focus more systematically on the overall integration of the validation of non-formal and informal learning into national skills policies and strategies.

A certification/qualification perspective

A third perspective to consider in validation is the point of view of certification. Certification is the last phase of the validation process. Through certification individuals obtain proof from an authorised body that they have achieved learning outcomes to a given standard. The certificate obtained can be used by the individual for accessing further education or employment.

The current changing landscape of qualifications and the emergence of alternative credentials (such as microcredentials and digital badges) is affecting the certification phase of validation, as the content and structure of qualifications are evolving. Short training courses and learning experiences are developing rapidly across Europe among a wide variety of public and private stakeholders, in response to the need for more flexible, learner-centred forms of education and training. These shorter forms of learning can be formal, but will mostly be non-formal and often labour-market related. The potential role of and interest in credentials that certify the outcomes of

these short learning experiences is thus increasing (Cedefop, 2022*b*).

In a fully implemented lifelong learning system, a certification obtained at one point in time through a shorter course with labour market orientation could later on be integrated into a more formalised, full qualification. In this way, individuals will be able to build credentials throughout their lives, drawing from different learning contexts. Validation should, therefore, not be seen as something happening once, but rather as something that can happen at different stages of an education and employment career.

The certification stage in validation serves two important and interconnected purposes:

- First, it makes it possible for individuals with appropriate prior learning to acquire a qualification (or part of a qualification) without participating in unnecessary and costly learning activities to achieve the same learning outcomes. This implicitly broadens the range of experiences considered relevant for formal education and training, stressing that all learning, irrespective of how, when, and where it is acquired, is valuable.
- Second, the certification stage may – if trustworthy – serve validation outside formal education and training, for example for labour market and third sector stakeholders. Many sectoral associations, employers, or civil society organizations award certification based on non-formal and informal learning.

In this context, the crucial aspects to consider are the extent to which these two purposes reinforce each other, and how they interlink to serve the individual from a lifelong learning perspective. In which case, certification acquired in one context should be easily connected to or complemented by qualifications or certifications obtained in another context. A key question is whether it is necessary and/or possible to establish a 'system' in which certificates obtained in different settings, inside as well as outside formal education and training, can be connected and accumulated (or 'stacked') in ways which can serve the lifelong learning needs of individual. There are several dimensions to this question.

Awarding body: Who provides the certification?

The currency of a certificate is traditionally linked to the reputation and credibility of the awarding institution, authority, or body, defined by the EQF Recommendation as a 'competent body' (Council of the European Union, 2017). Qualifications awarded on behalf of national authorities will normally be well-known, trusted, and linked to transparent quality assurance processes. An increasing diversity of education provision and modes of delivery by a widening range of institutions – in education, labour market, and third sector – raises questions about the credibility of awarding bodies. The background and characteristics of the awarding body need to be clarified and clearly communicated to the individual and the stakeholders involved. It is crucial to be able to judge the institution that awards the certificate, in terms of its legitimacy as well as its nature.

Learning outcomes: What is being certified?

According to the EQF definition, a qualification or a certificate attests that the individual has acquired specified learning outcomes (Council of the European Union, 2017). This requires the certificate to contain information on the learning outcomes achieved. The focus has traditionally been on the location and duration of the learning process, not on outcomes. While progress has been made for qualifications awarded through the formal education and training system, the learning outcomes focus is less systematically applied in other certificates that still rely heavily on input factors, and there is room for improvement in how to formulate learning outcomes (Cedefop, 2022*b*). For individuals to accumulate different certificates successfully over time, it will be crucial to agree on minimum requirements regarding the inclusion of achieved learning outcomes in qualifications. Digitalization of certificates may facilitate such a development, allowing for the online inclusion of learning outcomes information and models that can be shared across sectors, borders, and institutions.

The certification standard: What is the certification referring to?

A certificate's currency and exchange value may be influenced by the standards to which it refers. National qualification systems increasingly use the same learning outcomes-based standards for assessment of formal, non-formal and informal learning. This avoids the creation of A and B certificates, whose currency refers to the location and method rather than the learning outcomes. In some instances, certificates might lack standards or reference points, which might influence currency, triggering a suspicion of poor quality and questioning of the relevance of the certificate for further learning or employment.

Both for the individual holder and the potential viewer or recipient of a certificate (in education or employment), future certificates should make it possible to consult and document the standards successfully met by the learner. The potential for connecting and accumulating different certificates may be enhanced by strengthening the dialogue on standards between different stakeholders. The challenge is to develop standards that can be used across sectors. A recently finalised project in Norway illustrates how social dialogue can support common definition of learning outcomes in labour market and education and training contexts (Skjerve, 2020).

Technical format: Digitalization of certificates

Certificates can be provided in different formats. Traditional diplomas, on paper, are well known and people tend to trust them. However, in recent years, more and more institutions are moving to paperless certification, issuing diplomas only in digital format. Digital credentials can make certification more transparent since more information can be added to the certificate. Digitalization of credentials provides infinite possibilities for linking the certificate to other information elements.

Digitally issued credentials (e.g., through the Europass Digital Credentials) afford the possibility of certifying a wide range of activities and experiences by any issuer. For example, digital badges have emerged as a flexible format to document experiences. Badges are used in many different ways to signal that an individual has gained a certain experience or accomplishment. They have a broad coverage, from the gamification of online learning to certification of assessed skills and competences.

Further, the certificate can be much more quickly checked for authenticity, and its information can be compared across sectors more easily; this makes recognition faster and easier. Blockchain technology also can increase the security and make it harder for people to falsify certificates (Delgado-von-Eitzen, Anido-Rifón and Fernández-Iglesias, 2021).

A methodological perspective

A fourth perspective relates to methodologies. Validation methodologies seek to make visible the outcomes of individual learning experiences, irrespective of where or when these took place. To accomplish this, several challenges have to be addressed that relate to the validity, reliability, scalability, and cost of the methodologies:

- First, methodologies need to be valid. In order to do so, they need to:
  - Capture unique, individual learning experiences.
  - Capture a wide diversity of knowledge, skills, and competences – factual knowledge and technical skills, but also transversal skills.
  - Make visible 'taken for granted' and 'invisible' (to the candidates themselves and relevant stakeholders) learning.
- Second, validation methodologies must be reliable and stay stable across sectors and contexts of implementation. While the knowledge, skills and competences mapped will differ according to individual experiences, the methodology itself must be transparent, predictable, and produce fair results, so that the approach can be trusted.

- Third, it must be possible to repeat the approach for other candidates. The methodology needs to be scalable and usable in different contexts and levels, while maintaining its validity and reliability.
- Fourth, methodologies need to produce objective, unbiased results. Measures need to be objective in terms of providing consistent results from different evaluators. Methodologies should consider everyone's specific circumstances, experiences, needs, and barriers, personalising the approach as far as possible within the specific objectives of the validation arrangement.
- Fifth, each of these different elements will need to be considered against their cost. Validity, reliability, scalability, and objectivity cannot be seen in isolation but need to be judged in relation to the costs, in time and money, for the candidates and the validation providers.

For every validation approach developed and implemented there will be a need to find a balance across these elements. Strengthening the quality of validation is closely related to the overall purpose and function of the validation approach in question. It is critical to select and apply fit-for-purpose methodologies. The four stages of validation (identification, documentation, assessment, and certification) will require different approaches, in the same way that validation in enterprises will differ from validation related to the education and training system. However, it is important that the measures in different contexts are consistent while all being valid and reliable. There are several dimensions that will influence the choice of methodology and require consideration.

Validation for formative or summative purposes

The distinction between formative and summative validation approaches has been present in discussions of validation since its beginning (Trowler, 1996). Summative approaches focus on the achieved learning outcomes, while formative approaches rely on providing feedback to the individual during the learning process. Both approaches can, of course, co-exist and, in many instances, it is a matter of how the results of a validation process are used.

Validation processes that focus on identification and documentation will tend to be formative, while validation processes focusing on assessment and certification will likely be summative.

In a similar way, while some methodologies can be used for both formative and summative purposes, certain methodologies lend themselves more easily to one or the other. When validation is used for the award of a partial or full qualification, initial steps may involve the use of formative approaches (dialogue based), while the final assessment and certification stages will involve standardised written or practical tests.

Extracting vs. documenting

The European guidelines for the validation of non-formal and informal learning (Cedefop, 2015) distinguish between tools for extracting evidence (tests and examinations, conversational methods, declarative methods, observations, simulations, evidence extracted from work) and the tools for documenting and presenting evidence (such as 'live evidence', CVs, third party declarations, and portfolios). Although this differentiation is not always clear-cut, it captures the key validation functions of making visible, and valuing, learning. Methodologies need not only to capture the unique knowledge, skills, and competences acquired by the candidate, but also to do this in a way which generates trust and ensures validation can be converted into future employment or learning. Much of the knowledge acquired informally tends to be tacit (i.e., invisible), and needs to be discovered by the individual. In many instances, this requires the support of a counsellor.

Individual tailoring vs. standardisation

Validation methodologies need to be adapted to the individual circumstances and objectives, but also require a certain degree of standardisation and scalability, so outcomes can be transferred from one context to another while maintaining reasonable cost. In addition, it will be important, if validation needs to be available for more people, that the methodology used is adaptable to specific individual needs.

Some methodologies will be better suited for standardisation and scaling up than others. Scaling-up methodologies might come at the expense of possibilities for personalising methodologies to the individual, potentially making it more difficult to capture unique individual learning experiences.

Standardising methodologies might be perceived as fairer, but might, at the same time, benefit certain types of knowledge or specific groups. While validation is often seen as a tool that can contribute to equalising different "cultures of knowledge" (Singh, 2015, p.22), it can also be used for exclusion and control (Fejes and Andersson, 2009; Souto-Otero and Villalba-Garcia, 2015). It is thus imperative to consider scalability and tailoring of the methodologies while considering cost, fairness, and objectivity.

Self-assessment vs. external testing

Deciding who should use the methodology to identify, document, assess, and certify competences has important implications for the quality of validation methodologies. For each of the phases, there might be different actors and professionals providing support as well as deciding on the outcomes of each phase, while keeping the individual engaged and in control of the process.

The increased use of ICT throughout society has exacerbated the proliferation of ICT self-assessment tools for validation (Cedefop; European Commission; ICF, 2017). Individual self- assessment might be useful for the identification of skills and as a first step in the validation process. However, their reliability and validity may be questioned, and levels of trust will vary. Generally, self-assessment tools will need to be combined with other methodologies in which trained assessors judge an individual's competences. Self-assessments may thus be used to feed into a broader portfolio of evidence, or might be an important first step in the identification of skills and competences.

Professionals need to provide experienced, unbiased support, and be sensitive to individual backgrounds and circumstances to provide fair identification, documentation, assessment, or certification. New forms of assessment that rely on peers' judgements or networking capacity are calling into question traditional ways of competence identification and assessment, while ICT advancements are allowing for more interactive and sophisticated methodologies.

Conclusion

The present chapter has looked at validation from four different perspectives: Individual, skills strategies, certification, and methodology. These four perspectives, when combined, provide a broad approach, offer rich insights into validation developments and the factors influencing success and failure in this area. Each perspective allows us to focus on specific aspects that are relevant for validation, while the combination of the four provides new insights into the elements that define validation.

This chapter is only a first attempt to define and illustrate the four perspectives. Further exploration of the four perspectives as lenses with which to view specific aspects of validation, such as financing, stakeholder involvement, or reference points and standards, can open up new opportunities for peer and policy learning, as well as sites for research.

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4

From fragmented paper-based systems to digitally connected qualification systems accessible to citizens

Zelda Azzarà and Anatolii Garmash

Introduction

The common objective of most NQFs around the world is to increase transparency and comparability of qualifications. The development of qualification databases and digital tools offers the opportunity of making qualifications more transparent and giving individuals the possibility to navigate and explore individual qualifications. While it can be technologically and conceptually challenging, the development of digital tools for understanding, analysing, and comparing qualifications is now a feasible scenario; but it requires trust, cooperation, and coordination. Digitalization also offers the opportunity to create a data space for skills and qualifications, based on integrated platforms and interoperable systems that can deepen understanding of qualifications and qualification systems and connect them to other systems, processes, and policies as a way to empower individuals and support mobility and lifelong learning.

Qualification systems vary considerably between countries. Although international standards may become more prominent, different contexts require fit-for-purpose solutions. The challenge lies in determining how best to link qualification systems that differ so much. Systems must be able to talk to one another, and this requires trust and common semantic formats for structuring data. When data is structured in a similar way, it is easier to compare and analyse.

There is an expectation that these links between national databases can support more mobility and recognition, both physically and virtually. Low- and middle-income countries have difficulty keeping their sets of qualifications up to date, and keeping up with developments in high-income countries. Sharing information on qualifications through open sources can help them to catch up. This is also the basis of the ETF's concept of a network of national databases, that proposes to link national databases of qualifications using international standards to support the renewal of national qualifications.

This chapter will draw on the expertise and analysis of Cedefop and the ETF, including the ETF feasibility study on a network of national qualifications databases, the Cedefop project on comparing qualifications, and the work carried out by the EU on Europass and a European learning model, as well as notes and discussions taking place in plenary sessions and project groups of the European Qualifications Framework Advisory Group over the last five years. It attempts to demonstrate how the shift to digital systems adds value to the development and use of NQFs and to the qualifications and skills that people acquire, and to make recommendations on how interoperability of qualification databases could be achieved at a global level.

Digitalization and qualifications databases to strengthen transparency of qualifications

Beyond NQF levels

The common objective of regional, and most national, qualifications frameworks is to increase transparency and comparability of qualifications.[38] However, qualification systems vary considerably between countries, and for qualifications to be of any use they must be trusted. While elements such as the use of learning outcomes, cooperation among stakeholders, and quality assurance are key elements in forming the basis of trust on which qualifications frameworks rely, digitalization and the development of qualifications databases and registers offer an opportunity for operationalising national and regional qualifications frameworks and thus strengthening the transparency and comparability of qualifications.

NQFs can provide an overview of nationally recognised qualifications made visible and accessible to end users by databases and registers. While NQF levels offer relevant indications of the position and value of a qualification in a country, and in relation to other qualifications, levels are not enough to understand the content of qualifications and compare them. The development of databases can make NQFs operational and strengthen transparency of qualifications by giving end-users direct and easy access to information on individual qualifications and their content.

Digital developments can potentially improve the way in which information on qualifications is made available, presented, and compared with their impact on transparency, trust, portability, and relevance. Providing clear and direct access to transparent information on the content and profile of qualifications can support individuals (learners, workers, jobseekers) to progress in learning and work, for example by making it easier for them to understand how different qualifications from different countries or institutions connect. Transparency in terms of what holders of qualifications know, understand, and are able to do can help reveal the academic, economic, and social value of qualifications and this, in turn, can support the recognition of qualifications to access employment or further education and training. Employers and recruiters can better interpret and assess applicants' qualifications, or compare foreign qualifications with qualifications they know. Education and training providers and admissions officers are supported in understanding the content of learning acquired by individuals. Qualification authorities can be facilitated in their recognition process by getting access to data on available qualifications (and possibly old or archived qualifications), and guidance counsellors can be supported in their activities. Digital technologies can also speed up the development and updating of qualifications and education and training programmes, ensuring that qualification systems are more responsive to changes in the labour market and in society.

As qualifications frameworks widen their scope, transparency and access to information remain important for fostering trust. In an increasing number of countries, the coverage of NQFs goes beyond qualifications awarded in the formal education and training sector to include qualifications awarded outside the formal system and which are not regulated by public authorities such as qualifications developed by private providers, companies, or sector bodies (Cedefop, 2020).

The landscape of qualifications is changing with the expanding scale of alternative routes to

38. Cross-country analysis, this volume.

the acquisition and demonstration of skills and competences. The accumulation and combination of microcredentials into full qualifications is a visible trend in some EU Member States (Cedefop, 2023). There is a tendency towards development of modules or smaller units. Typically, these parts of qualifications or units of learning outcomes can act as self-standing units of assessment or modules, which can be shared across qualifications and courses. Qualifications databases and digital developments can potentially support their combination (or stackability) to progress towards larger qualifications, or build personalised and flexible learning pathways supporting progress and transferability of learning outcomes.

An analysis of national databases and registers of qualifications in EQF countries (Auzinger et al., 2020) concluded that progress has been made in establishing and developing qualifications databases and registers. There is a great variation across countries, for instance on whether or not the databases cover the full scope and level of information about NQF qualifications and their learning outcomes. National qualifications databases and registers are still expected to support the general objectives of making qualifications more visible and transparent and comparable nationally and/or internationally.

Interoperability of qualifications databases at European level: The need for common structures

Digitalization can play a key role in connecting qualifications frameworks from different countries. Interoperability of information and the development of interactive online platforms are possible options for obtaining details of individual qualifications and seeing how they relate to each other, within and across countries.

For this to happen systems must be able to talk to one another, and common semantics (standards) for structuring data directly support interoperability. A coordinated approach to structuring information about the content of qualifications can ensure a meaningful and valuable deployment of digital technologies. Common data schema and standards are needed to exchange, compare, and analyse data across countries and sectors with greater ease.

The first efforts to create interoperability of data in education training and labour market go back many decades, with the development of standards and classifications such as the International Standard Classification of Occupations (ISCO) and the International Standard Classification of Education (ISCED), which were designed to classify education programmes and occupations. While qualifications frameworks can also be used to order and classify qualifications for statistical purposes[39], they are developed primarily to increase transparency and comparability of qualifications by focusing on the use of learning outcomes to make skills and competences visible and understandable across sectors and countries.

In the EU, discussions about common formats for sharing and presenting information on qualifications to facilitate understanding from third persons – particularly in another country – date back 20 years. The Europass Diploma Supplement and the Europass Certificate Supplement have been the most important 'paper tools' in this respect[40]. Both have been introduced to provide information about qualifications in a standardised way, mainly to support employers, education and training providers, and credentials evaluators to better understand other countries' qualifications. The Europass Certificate Supplement is used to present the main characteristics of a formal VET qualification; while diploma supplements are issued by HE institutions and provide information on learners' personal achievements. Both documents can include information on the level and learning achieved

39. In Ireland, the National Framework of Qualifications (NFQ) is also used by the National Skills Council and the Central Statistics Office in data collection on the education and training system and educational attainment, and by the Central Applications Office in the application process for higher education (Cedefop, 2021).
40. The Diploma Supplement is a transparency instrument jointly developed by the Council of Europe, European Commission, and UNESCO between 1996 and 1998, mainly to support recognition of HE qualifications across borders. The Certificate Supplement was then developed to present data on VET qualifications. Both were incorporated in the 2004 Europass decision 2241/2004/EC. The 2018 Europass Decision 2018/646 (which repeals the 2004 decision) defines them as follows: 'diploma supplement' means a document attached to a higher education diploma issued by the competent authorities or bodies, in order to make it easier for third persons – particularly in another country – to understand the learning outcomes acquired by the holder of the qualification, as well as the nature, level, context, content and status of the education and training completed and skills acquired; 'certificate supplement' means a document attached to a vocational education and training or professional certificate issued by the competent authorities or bodies, in order to make it easier for third persons – particularly in another country – to understand the learning outcomes acquired by the holder of the qualification, as well as the nature, level, context, content and status of the education and training completed and skills acquired.

(learning outcomes) and are usually translated into other languages.

The revised EQF Recommendation adopted in 2017 (Council of the European Union, 2017) encourages Member States to publish electronically and make accessible information on all types and levels of qualifications and their learning outcomes using a common structure (Annex VI of the 2017 EQF Recommendation[41]) with required and optional data fields, such as those related to NQF/EQF levels, learning outcomes, and ISCED field.

To adapt to today's digital world, the European Commission has developed and is promoting the use of the European Learning Model (ELM[42]), to organise and share information on and connect qualifications as well as learning opportunities, accreditation, and digital credentials. Taking as its starting point the common structure for electronically sharing information on qualifications agreed by EU Member States in the EQF Recommendation, and building on other existing standards and common formats such as the Europass diploma and certificate supplements, the ELM turns the material proposed for exchanging information on qualifications into an open, machine-readable data model. This is an important step, because information on qualifications is often provided in data formats that prevent wide sharing, linking, and analysis (e.g., in PDF), limiting the potential of digital tools and hampering interoperability (Cedefop, 2019). Additionally, the Council recommendation on a European approach to microcredentials for lifelong learning and employability, adopted in 2022 (Council of the European Union, 2022), also presents in its annex the data fields to describe a micro-credential, indicating that they will be included in a European data model.

The European Commission is supporting Member States at a technical level to share information as linked open data, in accordance with the ELM. The data model is a free, multilingual, and open source tool that supports interoperability. This approach is in line with European legislation on open data (European Commission, 2019) which encourages Member States to make as much information available for reuse as possible as a way to foster transparency.

The development of digital solutions to facilitate data sharing on qualifications across sectors and countries has been promoted at EU level by a number of policy documents, from the 2018 Europass decision (European Parliament and Council, 2018), to the Digital Education Plan 2018-2020 (European Commission, 2018) and the 2020 European Strategy for Data (European Commission, 2020), which calls for a common European skills data space to continue building on developments in the interoperability of qualifications and the quality of data on learning opportunities.

The Diploma Supplement has been set up as a European digital credential, and work will likely be undertaken to digitalise the Europass Certificate Supplement as well. The fact that the same model is used for the digitalization of both documents shows its potential in acting as a common reference point for all types and levels of qualifications. The digitalization of the Certificate Supplement (currently used for VET qualifications only) along with its possible revision, can offer the potential to develop a broader digital qualification supplement for all NQF qualifications.

Challenges in learning outcomes descriptions and the need for cross-country cooperation

While digital progress and technical developments are supporting the creation of an international technical infrastructure for connecting qualifications database and registers, their added value strongly depends on the coverage and quality of qualifications included (i.e., the comprehensiveness of the NQF), and their ability to provide clear access to information on the content and profile of individual qualifications.

The use of learning outcomes has become a principle in the design and description of qualifications and as a way to allocate levels (Cedefop, 2016). Although learning outcomes alone might not be enough to

41. Annex VI of the EQF Recommendation provides elements for data fields for the electronic publication of information on qualifications with an EQF level. The model consists of 18 data fields, of which six are obligatory (Title of qualifications; Fields (ISCED); Country/Region (code); EQF-level; Learning outcomes description; Awarding body) and 12 are optional (Credit points/notional workload; Internal quality assurance process; External quality assurance process/regulatory body; Further information on qualification; Source of information; Link to supplements; URL; Information language (code); Entry requirements; Expiry data; Ways to acquire qualification; Relationship to occupations or occupational fields).
42. The ELM was officially launched in January 2022, with the full ELM v3 released on 11 May 2023.

fully understand and compare qualifications, they provide essential insights on their content and scope.

Cedefop has conducted a number of studies to explore comparability of qualifications, finding that, thanks to the use of learning outcomes to describe qualifications, it is possible to analyse and compare qualifications, uncovering similarities and differences and better understanding their scope and orientation (Cedefop 2020*a*, 2020*b*, 2022*a*). At the same time, the different ways in which learning outcomes are applied and written (e.g., length, level of detail, structure, focus) pose a challenge to comparability and limit the use of digital technology to analyse and compare information (Cedefop 2022*a*, 2022*b*). As a result, the description of learning outcomes remains a challenging aspect of ensuring a meaningful and valuable interconnection of qualifications databases.

A mapping of 37 of the 38 EQF countries revealed that, in 2020, a total of 26 directly or indirectly included learning outcomes descriptions for qualifications in databases. However, their variation in structure was identified as a significant limitation to the comparison of qualifications (Auzinger et al., 2020). In some cases, only full descriptions of qualifications were included; in a few cases, both full and shorter descriptions were present, or only the shorter versions. And in yet other cases, the Europass certificate supplements were used to present information.

Although emphasising the importance of information on learning outcomes, existing European models, such as the Europass supplements, the common format part of the EQF Recommendation (Annex VI), and the ELM provide only general guidance on how to present them in a way which supports transparency and comparability. In the context of the EQF, discussions on improving cooperation in learning outcomes and deepening work on transparency and comparability of qualifications have led to the setting-up of an expert group drawn from the official EQF Advisory Group (European Commission; Cedefop, 2021). The purpose of the group is to explore the development of common guiding principles for writing short descriptions of qualifications for publication in qualifications databases or registers connected to the Europass platform.

The idea behind this is that short and synthetic descriptions capturing the essence and core of qualifications, building on but not replacing full national descriptions, can offer multiple benefits. They can provide a quick and easy entry point for individuals such as learners and employers seeking information on particular qualifications. By going beyond just the title and level of the qualification, they can provide a deeper insight into the content of the qualification. Translation of shorter descriptions is simpler and can improve the quality of data provided to end users. Additionally, they can enhance transparency and facilitate comparability of qualifications across sectors, institutions, and countries, potentially opening the way to the use of digital technology for automatic or semi-automatic comparison of qualifications.

The EQF group of experts undertook a detailed analysis of learning outcomes descriptions from different countries, to identify strengths and weaknesses in approaches. This formed the basis for the identification of initial principles for structuring descriptions. So far, these principles are focused on various aspects, such as the length and structure of descriptions, overall aim of a qualification, and how to convey information on context, breadth, and depth of learning. The group is also reflecting on the use of action verbs and qualifiers to make short descriptions effective.

NQF level descriptors are also deemed an important reference point for the development of short descriptions. Using learning outcomes-based level descriptors for designing, reviewing, and levelling qualifications is a key reference point for quality assurance in the EQF process. Consistency between the level descriptors and short descriptions can foster trust in the qualifications. By establishing common guidelines for structuring short learning outcomes descriptions, the quality and consistency of descriptions can be improved. This can enhance comparability across different qualifications, enhancing the future relevance and impact of the EQF in supporting mobility and lifelong learning.

EU and international efforts to enrich information on qualifications and improve their comparability

The development of relevant digital tools at EU level has so far been limited to the comparison of NQF levels across countries through the EQF, as well as providing information on the type of qualifications and examples of individual qualifications for the

different levels (see Cedefop NQF online tool and Europass portal).[43] Cross-country comparison of the content of qualifications still requires further technical and conceptual work (Cedefop 2022*a*), including work on learning outcomes descriptions.

In 2020, the new Europass platform was launched to combine web tools and information, to support individuals in their learning and career. Information on EQF were incorporated in the new Europass. NQF qualifications published in Europass, by connecting national databases, can be accessed through the 'Find a course' application (which is still in beta version and needs much improvement). Currently, qualifications and learning opportunities are published in Europass without the possibility of distinguishing them, but this will become available in 2023 while ensuring visible links between the qualification and learning opportunities leading to it where relevant (European Commission, 2021). While the visualisation of information on NQF qualifications needs further development, Europass is serving as the front office and main access point for information on single qualifications.

As already noted, full descriptions of learning outcomes are drafted according to national criteria and reflect different national contexts, which can prevent comparability. The previously mentioned work on common principles for shorter descriptions of qualifications for publication on databases can potentially improve cross-country and cross-sector comparison of qualifications.

Still, the use of classifications, taxonomies, and restricted fields can also support comparability. A Cedefop project on the comparison of VET qualifications, among other things, explored the role of reference points that can capture learning outcomes in order to analyse similarities and differences between qualifications through the use of new digital technologies. While the European Skills, Competences and Occupations (ESCO) classification[44] was considered far from perfect, it was still identified as the most comprehensive and relevant reference system in this respect among those analysed.

ESCO can be used (also through the ELM) to enrich qualification data by linking learning outcomes of qualifications with ESCO skills and knowledge allowing for an indirect link with occupations. A pilot on linking learning outcomes of qualifications with the ESCO classification through an automated approach (AI and machine learning technology) has entered its third phase.[45] ESCO is also linked to national classifications of occupations and skills[46] and the occupations pillar is mapped to the International Standard Classification of Occupations (ISCO), ensuring interoperability with labour market information systems. It is also now used by public employment services to publish job vacancies, and for AI powered labour market analysis. Some countries have already created links and interconnections between ESCO and their qualifications databases (e.g., Estonia, Greece, Latvia, Lithuania, Slovenia).

ESCO can be considered an important reference point for comparing qualifications as it covers a wide range of sectors and is available in 28 European languages (including Ukrainian). In addition, a new transversal skills hierarchy has been included, improving the conceptual basis of the classification. Further development of ESCO would be needed to make use of it for the purpose of analysing and comparing (Cedefop, 2022*a*). One of the key limitations remains the fact that ESCO is not able to capture progression in learning expressing complexity of skills.

International efforts to facilitate comparison and recognition of learning outcomes in qualifications have also taken place with the development by UNESCO of the World Reference Levels (WRL) to support a common way of presenting qualifications, as well as other sets of outcomes (Hart and Chakroun, 2019). The WRL digital tool makes it possible to turn learning outcomes descriptions, for instance of qualifications, into a standardised profile and report using a standardised format and language. This can also represent progression, and makes it possible to deepen the analysis and identify in more detail the level of the qualification.

43. https://www.cedefop.europa.eu/en/tools/nqfs-online-tool/qualifications-comparison.
44. https://esco.ec.europa.eu/en/about-esco/what-esco.
45. Ibid.
46. According the EURES Regulation (EU) 2016/589 (http://data.europa.eu/eli/reg/2016/589/oj) for the purpose of automated matching through the common IT platform (e.g., EURES or Europass), each Member State shall map its national, regional, and sectoral occupational classifications and skills classifications to and from ESCO. Member States can also choose to replace their national classifications with the ESCO.

Digital ecosystems around qualifications and qualifications databases

Enriching information on qualifications and providing services for people

The shift from paper-based to digital systems offers people more opportunities than ever to benefit from using information about qualifications, skills, and competences. In addition to key information on qualifications and their learning outcomes, databases can integrate or provide links to other information that can enrich understanding of qualifications. Data on skills and qualifications can now be linked to other data, such as learning opportunities, validation opportunities, labour market data, and job vacancies, and can be integrated into guidance and counselling and other tools and services to support individualised lifelong learning.

The majority of qualifications databases in EU countries are part of broader website or portal services, and only few are standalone (Auzinger et al., 2020). In Denmark, the Education Guide website[47] set up by the Ministry of Children and Education is part of an information and guidance portal, and includes information on education programmes, qualifications, and descriptions of job profiles, as well as e-counselling. The Irish Register of Qualification[48] and the Lithuanian Register of Study, Training Programmes and Qualifications[49] integrate information on both qualifications and learning opportunities, with the latter also presenting information on occupations. In Belgium-Flanders, a trajectory database is under development to link qualifications and learning opportunities to make learning pathways transparent for citizens. The Latvian Qualifications Database[50] and the Catálogo Nacional de Qualificações in Portugal[51] include information on whether qualifications may be obtained via education programme or through validation of informal and non-formal learning. In Romania, the two main registers (the National Register of Qualifications in Higher Education[52] and National Register of Professional Qualifications[53]) aim to show the correlation between qualifications and possible occupations in the labour market. There are ongoing developments to create interoperability between learning opportunities, occupational classifications, and career information and guidance.[54]

As well as links to other sources of information, some countries have developed tools and applications to assist individuals in their learning and career decisions. Through the Hungarian qualification register[55], individuals can assess which scientific fields are worth considering for further studies, based on qualifications already acquired. The Slovenian Qualifications Framework Register[56], in addition to offering a tool for comparing up to three qualifications, includes video presentations of occupations connected with individual qualifications and shows possible career paths within selected fields. The Latvian Qualifications Database also includes the possibility of comparing qualifications, and offers the possibility of producing different statistics on qualifications (e.g., thematic fields and sector, or possible duration if a programme is followed to obtain the qualification). Austria, France, Türkiye, England, and Wales also offer the possibility of comparing qualifications within their databases, and development plans exist in a number of other countries (Auzinger et al., 2020).

The databases can also be integrated or linked to information on funding. In France, the two main national registers of qualifications are fully interconnected (Répertoire national des certifications professionnelles and Répertoire spécifique[57]), and the register has an articulation with the French funding database EDOF and the personal training account (*compte personnel de formation*)[58] which is used to fund training courses part of the register (France Competénces, 2021). The qualifications database in the Netherlands (Kingdom of the)[59] has links with the

47. http://www.ug.dk/.
48. https://irq.ie/.
49. https://www.aikos.smm.lt/
50. https://www.latvijaskvalifikacijas.lv/en/.
51. https://catalogo.anqep.gov.pt/.
52. http://www.anc.edu.ro/registrul-national-al-calificarilor-din-invatamantul-superior-rncis/.
53. http://www.anc.edu.ro/rncp/.
54. European Commission; Cedefop (2022). Survey on implementation, use and impact of NQF/EQF: Romania. [Unpublished].
55. http://www.magyarkepesites.hu/.
56. https://www.nok.si/en/sqf-register.
57. https://www.francecompetences.fr/recherche_certificationprofessionnelle/.
58. https://www.moncompteformation.gouv.fr/espace-prive/html/.
59. https://nlqf.nl/database-nlqf-kwalificaties/register.

STAP individual learning budget[60], and studying for an NQF qualification might be one of the criteria for using funds (Cedefop, 2021*b*). In Estonia, the Professional Qualifications Register[61] is linked to the Estonian Unemployment Insurance Fund.

In some countries, through qualifications databases or other applications, it is possible to see relationship between qualifications, or between some of their components. Relationships between qualifications are, for example, visible on the Slovak databases[62] and the French register mentioned above. In Portugal, the Passaporte Qualifica tool[63] is a simulator that shows possible learning paths, building on qualifications and skills already obtained and taking into account the possibility of transferring them.

In addition to the short description of learning outcomes, qualifications databases afford the possibility of diving into the qualification of interest. For example, in Finland the qualification database ePerusteet,[64] in addition to a short description of qualifications and the possibility of downloading the Europass Certificate Supplement in English, Finnish, and Swedish, offers detailed information on the composition of the qualification in terms of compulsory, optional, and common units. Similarly, the Portuguese Catálogo Nacional de Qualificações[65] offers the possibility of exploring in detail skills and competences for each individual qualification.

Table 3: Database coverage and data quality

	INITIAL	DEVELOPING	ADVANCED
	Increasing Coverage		
Focus	Data Collection on Qualifications	Discovery of Qualifications	Qualifications Intelligence
Features	Collection of information on qualifications from providers, or from licencing or accreditation bodies, in a standardised format.	Browse and search qualifications database. View information on qualifications. Export or otherwise share information on qualifications.	Automated comparison of qualifications. Suggestion of similar qualifications. Monitoring of trends in qualifications development.
Policy Impact / Service	Standardisation improves quality of qualification standards. Collection of data gives national overview of qualifications supply.	Transparency and visibility of qualifications: Allows for practice sharing between qualification creators. Allows users to discover new qualifications. Allows users to verify information about qualifications.	Better guidance services for students, better ability to benchmark for qualification creators. Public authorities can measure impact of government policies and market changes on qualification development.
	Increasing data quality & Frequency of updateds		

Source: ETF, 2021

60. https://www.stapuwv.nl/p/voorportaal.
61. https://www.kutseregister.ee/en/avaleht/.
62. http://www.kvalifikacie.sk/.
63. https://www.passaportequalifica.gov.pt/cicLogin.xhtml.
64. https://eperusteet.opintopolku.fi/. In addition to the ePerusteet database, which includes vocational qualifications, the portal Opintopolku ('Studyinfo' https://opintopolku.fi/konfo/en/) offers information about all levels and types of education offered in Finland.
65. https://catalogo.anqep.gov.pt/qualificacoesDetalhe/7371.

The benefits of qualification databases are evolving according to the level of development of the database, measured in terms of the coverage and data quality (ETF, 2021), from providing a way to gather information about qualifications in a standardised format at early stages of their development, to the integration into applications that provide different services for people, or with labour market information systems at the advanced stage (Table 3).

From information systems to supporting individuals

Data on qualifications and skills in qualification databases typically do not contain personal information, but an individual can relate their personal information to it by using other applications and tools. The EU has already begun implementing projects that help individuals better communicate and present their skills and qualifications and link this with personal information. For example, the revamped Europass platform, the European instrument that allows citizens to describe and communicate their skills, qualifications, and experience by creating an e-portfolio and sharing it with third parties. This is continuing the development of 'recommender tools' for users, where qualifications and courses published in Europass, and jobs – retrieved from the EURES platform – can be recommended based on skills, interests and experiences recorded in e-portfolios, similar user profiles, and the results of self-assessments. The EU Skills Profile Tool[66] is a tool aimed at citizens of third countries. It allows people to map their skills, qualifications, and work experience, and gives them personalised advice on further steps, such as recognition of their diplomas, skills validation, further training, or employment support services.

The European Commission is promoting the use of the European learning data model to publish information on NQF qualifications in Europass. The data model builds on existing common formats for sharing information on qualifications, notably the common format part of the 2017 EQF Recommendation and Europass supplements, but goes beyond them, widening the possible information fields (class and properties) and aligning also with other existing data models.[67] In this way, and through extensions, the model can be adapted to existing situations in different countries as well as to international contexts, and allows not only the publication of qualifications, but also learning opportunities, supporting the setting up of an accreditation database, and the issuing of digital credentials. Digital credentials[68] can be issued through the Europass digital credentials for learning infrastructure (EDC)[69]. This can link qualifications with individual personal information, and in the future may be able to reuse the information on qualifications already contained in Europass.

The EDC, as currently conceived, covers a wide range of documented statements on learning. They range from certificate of attendance, employer recommendation, or volunteering experiences and online courses, to qualifications or microcredentials. Through the EDC, authorised entities[70] like education and training providers can freely issue digital qualifications to a specific person in any of the 29 languages of Europass. The web-app for issuing credentials is free of charge, but to use it requires an advanced or qualified electronic seal, i.e., one that is compliant with EU Regulation No 910/2014[71] for electronic transactions within the internal European market. These digital qualifications can be richer in information than paper-based equivalents, which can help when assessing the value of a qualification. In Luxembourg, Croatia, and Malta, the Erasmus student network has started using the system to issue digital credentials such as VET certificates, degrees, transcripts of record, and training certificates.[72]

Issuing digital credentials offers the opportunity of integrating them into citizens' digital wallets. This exists at national level, for instance via the ePortugal citizen portal Inicio,[73] as well as at EU level. Through Europass, more than four million Europass wallets for storing digital credentials have been created, and

66. https://ec.europa.eu/migrantskills/.
67. https://github.com/european-commission-empl/European-Learning-Model?files=1.
68. https://europa.eu/europass/en/what-are-digital-credentials.
69. https://europa.eu/europass/en/europass-tools/digital-credentials.
70. https://europa.eu/europass/en/europass-tools/digital-credentials/digital-credentials-issuers.
71. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014R0910.
72. https://ec.europa.eu/futurium/en/system/files/ged/edci_presentation.pdf.
73. https://eportugal.gov.pt/.

in future digital credentials could be integrated into the digital wallets for EU citizens.[74] Individuals can share their Europass digital credentials with third parties such as employers, education and training providers, or credential evaluators.[75] In turn, the receiver can verify the authenticity and validity of the digital credential through the Europass infrastructure and its security mechanisms. In this way, human resources, credential evaluators, and other receivers are facilitated in their process of recognition. In addition, work is ongoing at EU level to develop an accreditation database of bodies authorised to issue qualifications, which would provide the option of also running an accreditation check when this information is available.

At national level, tools to verify the authenticity of qualifications also exist (Ukraine[76]) or are in development (Belgium-Flanders), but they are not necessarily integrated with NQF qualifications databases. For the development of an accreditation database at EU level, a pilot is currently ongoing to use accreditation data from the Database of External Quality Assurance Registers that includes information on higher education institutions.[77] The development of an accreditation database at EU level has the potential to build on information provided by NQF qualifications databases and registers. This means, for digital credentials corresponding to NQF/EQF qualifications, that a further check can potentially be run to guarantee the qualification received is part of a national qualification framework referenced to the EQF, and therefore a trusted and nationally recognised qualification underpinned by quality assurance mechanisms.

The development and use of common European technologies and standards has the potential to create connections between all these areas (i.e., qualifications databases, issuing of NQF digital qualifications, and accreditation checks), strengthening trust and changing the way credentials are certified, authenticated, and recognised.

A network of qualifications databases: Building trust beyond the EU

The benefits of NQF qualifications databases increase when they become interoperable across countries. Databases and registers are the way in which users access information on NQFs, and they are expected to become the official primary sources of information on qualifications in the country. Connecting them can lead to the provision of a map of trusted qualifications within and across countries, with the possibility of exploring or zooming in on the content of specific qualifications. This provides direct benefits to end users, and makes skills and qualifications from different countries more visible and understood internationally.

Building on existing tools, such the EQF, ELM, and ESCO, we can extend the use of a common data model to connect qualifications databases beyond the countries involved and into EQF implementation. The ex-ante evaluation of a conceptual solution to bring together qualifications databases in ETF partner countries (ETF, 2021) showed clear advantages of finding a common digital solution for both EU Member States and non-EU countries. This will give more impetus to EU neighbouring countries' efforts to operationalise their NQFs and develop services arising out of qualifications databases development, thereby improving understanding of qualifications gained outside the EU and facilitating mutual recognition. However, it is important that international cooperation is strengthened to enable countries and citizens to benefit from these advantages.

Connecting qualifications databases beyond the EU is a challenging but feasible scenario. The ex-ante evaluation mentioned above (ETF, 2021) has led to the following conclusions about the feasibility of a common solution allowing interoperability of qualifications databases at European and international level:

74. https://digital-strategy.ec.europa.eu/en/policies/discover-eidas#ecl-inpage-kpffse00.
75. https://europa.eu/europass/en/europass-tools/digital-credentials/digital-credentials-learners.
76. Реєстри | ЄДИНА ДЕРЖАВНА ЕЛЕКТРОННА БАЗА з питань ОСВІТИ (edbo.gov.ua).
77. https://www.eqar.eu/qa-results/synergies/european-digital-credentials-for-learning/.

a) Implement a network of qualifications databases

The advantages of linking databases across countries can only be realised through development of an integrated network of qualifications databases. Therefore, a joint qualifications database should be developed and, simultaneously, the development of interoperable national qualification databases in participating countries should be supported, helping to fast-forward their development and connect them with each other and with EU member states.

b) Establish a multi-stakeholder governance model for the network of qualifications databases

Governance arrangements are key to establishing trust. The network would need to involve stakeholders in the governance (qualifications agencies, and potentially NARIC centres), to strengthen cooperation and establish trust.

c) Implement a linked open data approach, based on the ELM and associated tools

The network should be implemented using linked open data best practices, building on existing European tools and using the ELM as the data storage and interchange format.

d) High-quality data is a priority

Many countries will need to upgrade their qualifications databases before connecting them. Prioritising data quality over breadth of coverage is essential for successful coverage and utilisation of the network. The first publication of data should only be allowed if it meets minimum quality standards.

e) Utilise standard vocabularies for data mark-up, to improve comparability

Comparability based exclusively on natural language processing and AI translation would lead to low fidelity in results. The focus on utilising standard vocabularies enhances understanding of the content without the need for direct translations. Comparability of qualifications should be enhanced by using reference vocabularies, including ESCO, EQF/RQF, NQF, and ISCED-F.[78] The internationalisation of qualifications databases with an element of translation should be encouraged, including the use of ESCO in national languages.

Box 1. Benefits of connecting qualification databases

1. **Improving consistency and comparability of qualifications nationally and internationally:**

   A common language for qualifications and credentials of all types will ensure consistency of data for qualifications and competences and demonstrate connections between credentials.

2. **Promoting quality assurance of qualifications and trust in them**

   Richer information on qualifications and credentials will help to assert the value and quality of credentials and strengthen public trust, across EU and non-EU countries, to boost mobility and lifelong learning.

3. **Increasing transparency for users, giving direct access to information on qualifications internationally**

   Making skills and qualifications from different countries more visible and understood internationally. Information on qualifications is shared and easily accessible and searchable.

4. **Integration into tools and services to match learning and employment opportunities**

   Pooling information into a common database allows the creation of applications that use the information from the joint database to provide different services (qualifications search and comparison; choosing best options for learning; skills matching; job search and career planning, and so on).

5. **Recognition of credentials supported by interoperable digital solutions**

   A common network of qualifications databases can serve as a framework for recognition and comparison of credentials of all types, including microcredentials, to ease recognition of prior learning. It will aid mobility of learners and workers, including refugees, and the establishment of relationships among credentials.

Source: ETF, 2021

78. The ELM started collecting and publishing a range of standard vocabularies including EQF, NQFs, ESCO and ISCED-F. See https://op.europa.eu/en/web/eu-vocabularies/europass.

f) Accelerate rollout of a network by developing and distributing an open-source software solution for national qualifications databases

Developing an open-source software package for managing national qualifications databases (focused on open source and open data) would provide efficiencies, rather than an individual approach by each country. However, the network would need to accept inputs from custom solutions as well.

g) Strong need for centralised country support

Successful implementation of the network will require significant capacity building in participating countries. A support service will have to be maintained in the long term.

h) Publication in the database only of officially recognised qualifications

Qualifications databases have higher fidelity and authority when they are the official, primary source of information for the qualifications they contain. Only officially recognised qualifications should be published in the database.

Conclusions

Traditionally, qualification systems have been very much paper based, making the development, comparison, and recognition of qualifications a lengthy process. New developments are changing this, with instruments such as the EQF, Europass, ESCO, and ELM playing an important role in the European region.

The development and use of qualifications databases and digital tools has the potential to enhance transparency and comparability of qualifications, in line with the objectives of NQFs, and open the way to new scenarios in the field. These databases are expected to become the primary official sources of information on qualifications across countries, allowing for a more detailed understanding of the content of specific qualifications, providing direct benefits to end users, and making skills and qualifications from different countries more visible and understood internationally thus facilitating mutual recognition and mobility. Additionally, digital processing of information can speed up the development and updating of qualifications and education and training programmes, ensuring that qualification systems are more responsive to changes.

At the EU level, technical solutions are being implemented to connect NQF qualifications databases and registers from different countries in one place (the Europass portal), building on years of cooperation in the context of the EQF. However, further conceptual work and strengthened international cooperation are needed, particularly in the descriptions of learning outcomes-based qualifications, to facilitate comparability of qualifications and take advantage of technological and digital opportunities for the benefit of individuals.

The shift from paper-based to digital systems gives people more opportunities than ever to access and make use of information about qualifications, skills, and competences. Emerging digital tools are changing the way we describe and communicate our skills, qualifications, and experience. Data on skills and qualifications can now be linked to other data, such as employment and learning opportunities, validation opportunities, labour market data, and job vacancies, and can be integrated into guidance and counselling and other tools and services to support individualised lifelong learning. Digital credentials are also transforming systems of recognition, providing more personalised and accurate information on individuals' achievements, with potential impacts on the transferability of learning.

The benefits of digitalising qualification systems increase when they become interoperable across countries. Building on European and global developments, it is possible to reinforce international cooperation in the area to connect qualification databases beyond the EU. The use of existing European tools to connect qualifications databases can be extended beyond the EU, giving more impetus for neighbouring countries to operationalise their NQFs, creating a zone of mutual trust in qualifications extending from the countries in the EQF to the whole EU Neighbourhood and Central Asia.

Interoperability of information, connection of qualifications databases across countries, and development of integrated platforms can support individuals in their work and learning paths through flexibility, portability, recognition, cross-border mobility, and lifelong learning.

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Digitalizing RVA: The case of TVET for migrants and refugees

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Migrants and refugees have specific skills needs that determine their professional and social inclusion. Some lack technical and vocational competences, but want to embrace Technical and Vocational Education and Training (TVET) in their host countries, or are looking for possibilities to upskill and reskill. Some already possess competences acquired formally, informally or non-formally, and want to continue to build on these. This chapter will explore digital tools that have been used to facilitate recognition, validation and accreditation of prior learning (RVA) processes in the TVET sector, with a focus on migrants and refugees. It will investigate the role of technology in enhancing inclusion for refugees and migrants in RVA processes. The chapter will also examine how existing digitalised services promote the accessibility, efficiency, and effectiveness of RVA for TVET. In doing so, it will unpack challenges and provide examples of best practice.

In line with the above objectives, the chapter seeks to address four key questions:

1. What digital tools already exist to facilitate the recognition of prior technical and vocational learning and/or open up access to TVET opportunities for migrants and refugees?
2. What are the benefits and challenges of using digital tools to support migrants and refugees in accessing and completing RVA?
3. How can technology contribute to the creation of more inclusive RVA systems that benefit migrants and refugees, particularly as they seek to engage in TVET?
4. What conclusions can we make based on the current use of technology to support RVA for migrants and refugees?

The chapter will first provide conceptual underpinnings for RVA and TVET informed by UNESCO's work and research. It will then consider digital tools enhancing RVA for migrants and refugees, in relation to TVET. Specifically, it will look at how processes including e-guidance, e-portfolio development and e-assessment are enhancing the inclusion of such groups, and will explore the main benefits and challenges of using technology in RVA for migrants and refugees. Then, it will offer a short analysis of best practices to promote the inclusion of such groups in RVA for TVET and, in turn, RVA's role as a facilitator of inclusion, through using digital tools. The chapter will close by offering some conclusions based on the cases we have explored. Each of these sections will be considered through the lens of TVET.

Box 2. Defining recognition, validation and accreditation

Recognition is a process of granting official status to learning outcomes and/or competences, which can lead to the acknowledgement of their value in society.

Validation is the confirmation by an officially approved body that learning outcomes or competences acquired by an individual have been assessed against reference points or standards through pre-defined assessment methodologies.

Accreditation is a process by which an officially approved body, on the basis of assessment of learning outcomes and/or competences according to different purposes and methods, awards qualifications (certificates, diplomas or titles), or grants equivalences, credit units or exemptions, or issues documents such as portfolios of competences. In some cases, the term accreditation applies to the evaluation of the quality of an institution or a programme as a whole.

Source: UIL, 2018

Introducing recognition, validation and accreditation in TVET

RVA refers to the recognition, validation and accreditation of all forms of learning outcomes. As the UNESCO Institute for Lifelong Learning (UIL, 2012, p. 8) defines it, the practice seeks to make visible and value "the full range of competences (knowledge, skills and attitudes) that individuals have obtained in various contexts, and through various means in different phases of their lives."

Amidst increasing international mobility, RVA is key for the creation of flexible learning pathways between formal and non-formal learning settings, as well as between education, training, and work, within and across borders. By properly acknowledging existing competences, it incentivises individuals to continue learning and enables them to take an active role in the labour market, as well as society in general. When integrated into wider education and training systems, RVA can positively impact economies, act as a tool for the inclusion of marginalised groups, and benefit society as a whole.

Where TVET is concerned, RVA can open up opportunities for individuals seeking to learn about or enter entirely new fields; pave the way for access to upskilling and reskilling possibilities; and allow those who have already developed technical and vocational competences through non-formal and informal learning to get these recognised. It is equally worth noting that RVA can support graduates who have undertaken academic studies at formal learning institutions in pursuing 'reversed' pathways, through which they enrol onto TVET programmes following their completion of post-secondary general education (UNESCO-UNEVOC, 2017).

Accordingly, RVA's increased role in supporting access to and recognition of TVET for individual learners has been underpinned by notions that TVET should support the creation of flexible learning pathways and a culture of lifelong learning. Notably, UNESCO's Strategy for TVET (2022-2029) emphasises how it "must offer lifelong learning opportunities, with individualised and adaptative pedagogies, flexible learning modalities, pathways across types of education and training and across activity sectors, recognition of prior learning and validation of skills, career guidance and counselling" (UNESCO, 2021, p. 6).

Similarly, UNESCO's normative instrument (*Recommendation concerning Technical and Vocational Education and Training*) supports Member States by articulating the need for policy development and better governance of TVET through learning pathways (UNESCO, 2016). It specifies that "Member States should develop pathways and facilitate transitions between secondary, post-secondary and tertiary education including flexible admission procedures and guidance, credit accumulation and transfer, bridging programmes and equivalency schemes that are recognised and accredited by relevant authorities" (UNESCO, 2016, p. 7). Furthermore, the Recommendation adds that low-skilled and unskilled individuals should be encouraged to pursue certification, to access further learning and work (UNESCO, 2016).

Active steps are being taken to make this a reality. The development of national qualifications frameworks, credit recognition systems, and the provision of tailored careers guidance has sought to ensure those with TVET experience have access to learning opportunities throughout the lifespan (UNESCO-UNEVOC, 2017).

In line with such efforts, UNESCO has been supporting TVET policy development, with a focus on the recognition and certification of skills (UNESCO, 2021, p. 8). In today's context of heightened international mobility, it has also prioritised efforts to support the recognition of qualifications frameworks and skills between countries, as well as the use of artificial intelligence, blockchain and data protection measures at a global level to complement this (ibid.).

However, while there are promising practices in place, RVA is not a standardised process in most countries, and some groups still struggle to access and complete RVA processes, due to their often lengthy, costly, and complex nature. In turn, this can restrict the TVET opportunities available to individuals and limit the formal recognition of their previously acquired technical and vocational competences. Ultimately, this can hamper their inclusion in the world of work and society in general.

Fortunately, the strategic use of technology provides a promising response to such challenges. In some cases, digital tools are addressing common difficulties through facilitating transitions from fragmented paper-based arrangements to digitally connected qualification systems, as explored elsewhere in this volume. Moreover, technology can improve the accessibility, efficiency, and effectiveness of RVA through facilitating outreach and participation; enhancing assessment; and speeding up recognition. This can, in turn, enhance its use as a tool for inclusion among a broader range of individuals, particularly where TVET is concerned.

Some countries have already taken note of this. Research conducted by UIL as part of its RVA for migrants and refugees project found that there is a growing tendency towards using digital tools to foster more inclusive, personalised, and responsive RVA processes (UIL, 2023). E-guidance, e-portfolio development and e-assessment provide notable examples. These processes work at different levels (i.e., national, regional, local). Digital tools used to support them may be standalone (e.g., in community centres and job centres) or embedded into broader systems.

In sum, the digitalization of RVA is already contributing to the recognition of technical and vocational competences, and opening up a greater range of TVET-related opportunities for beneficiaries to pursue. In other words, information and communications technologies are facilitating RVA's use as a tool for inclusion. This trend shows no sign of slowing down, as the development of digital tools for RVA responds to demands from the TVET sector and changing world of work. This is particularly promising for traditionally marginalised groups – including migrants and refugees – who often benefit from the heightened accessibility, efficiency, and effectiveness of digitalised RVA procedures, particularly where TVET is concerned.

RVA for migrants and refugees

Before unpacking the relationship that migrants and refugees have with RVA and how digital tools can enhance the inclusion of such groups (particularly as they seek to have TVET competences recognised and/or access related opportunities) it is important to define who exactly we are referring to. First, there is no universally accepted definition of a migrant at the international level (International Organization for Migrations, n.d. a). However, this chapter will adopt the International Organization for Migration working, umbrella definition, which sees a migrant as:

> **"a person who moves away from his or her place of usual residence, whether within a country or across an international border, temporarily or permanently, and for a variety of reasons." (International Organization for Migration, n.d. a).**

In our understanding, we also include returnee migrants, who go back to their sending country after completing a mobility period abroad, most often for work (UNESCO-UNEVOC and Vocational Education Commission, Sri Lanka, 2020).

Meanwhile, a refugee is "someone who is unable or unwilling to return to their country of origin owing to a well-founded fear of being persecuted,"

according to the 1951 Refugee Convention (UNHCR, n.d.). This term is often incorrectly used in place of "asylum seeker," which is somebody "who is seeking international protection. In countries with individualised procedures, an asylum seeker is someone whose claim has not yet been finally decided on by the country in which he or she has submitted it. Not every asylum seeker will ultimately be recognised as a refugee, but every recognised refugee is initially an asylum seeker" (International Organization for Migration, n.d. b).

In this chapter, we focus on both migrants and refugees for three main reasons. First, while both groups have distinct needs that should be accounted for where RVA is concerned, in some cases they share similar obstacles in terms of access and completion. These challenges typically differ from those faced by nationals of a given country. In completing RVA, language barriers, difficulties with cultural integration, and the sometimes negative psychological impact of moving to a new country can be faced by both migrants and refugees, albeit to differing extents (UIL, 2023). On top of this, one of the major difficulties the two groups often share is that, without formal proof of their prior learning experiences – often associated with a lack of physical documentation – their technical or vocational competences might not be recognised in new national contexts. This lack of recognition can make it challenging for them to engage in the world of work and TVET opportunities, complicating their social and professional inclusion (UIL, 2023).

Second, as UIL has found, some countries receiving large numbers of migrants and/or refugees have developed promising RVA initiatives targeted at one or both groups, but there is still a long way to go. Indeed, overall, relatively few nations have implemented processes that cater for the specific needs of refugees and migrants, despite the crucial role both can play when included in a given host country's labour market and society in general (ibid.).

Finally, International migration has been broadly increasing – despite disruptions presented by the COVID-19 pandemic – with nearly two thirds of international migrants moving for work in 2020 (International Organization for Migration, 2021). Meanwhile, according to the United Nations High Commissioner for Refugees, as of 2022, the total number of people having to flee their homes had risen every year over the previous decade (UNHCR, 2022). Against a backdrop of 281 million international migrants and 26 million refugees worldwide (International Organization for Migration, 2021), the inclusion of such groups via RVA and access to TVET opportunities is a global priority (UNESCO, 2021, p. 5).

Based on a review of the literature, specific needs have been identified, including the need among those lacking technical or vocational competences to embrace TVET opportunities for the first time; the need to have one's existing prior technical or vocational learning recognised; and the need to upskill or reskill through TVET opportunities. The use of digital tools in RVA to support beneficiaries in meeting these needs can be seen through three lenses:

- The lens of accessibility (i.e., promoting knowledge or awareness of the process and ensuring a user-friendly procedure)
- The lens of efficiency (i.e., getting prior learning recognised quickly and smoothly)
- The lens of effectiveness (i.e., RVA leading to employment or income generation opportunities).

Importantly, where digital tools are used to cater for the needs of migrants and refugees in RVA for TVET, inclusion is a central feature that cuts across all three lenses. For example, through heightened efficiency, there may be wider scope for a greater number of candidates to engage in RVA processes which, in turn, benefits inclusivity. Indeed, the use of digital tools can promote the inclusion of individuals in specific RVA initiatives and, ultimately, in their host societies, through increased access to work and TVET opportunities via the recognition of prior learning. As such, inclusion will be considered as an overarching principle throughout this chapter.

The digital tools enhancing RVA for migrants and refugees

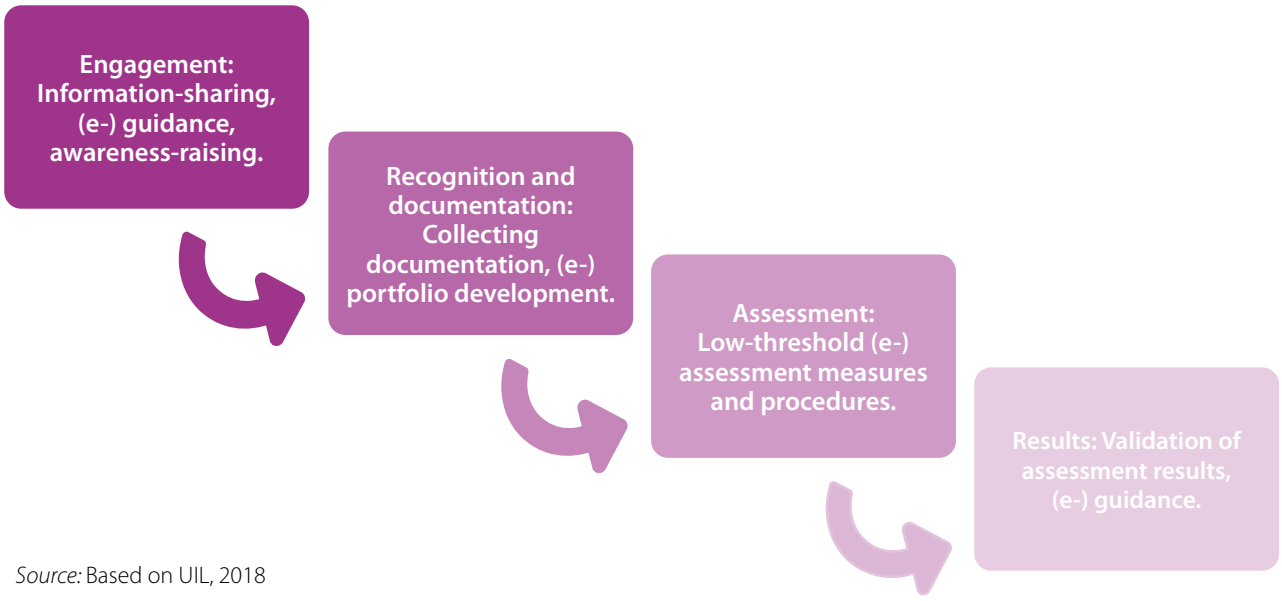
The development of e-guidance, e-portfolios, and e-assessment has been supporting migrants and refugees, among others, in getting their prior technical and vocational learning recognised, validated and accredited. As a result, the use of tools supporting these digitalised processes has been helping such individuals to access a greater range of TVET-related educational and professional opportunities in host countries around the world. This is often a first step to promoting the inclusion of refugees and migrants in a new society (UNESCO, 2021).

A cross-cutting example from Kenya is worth considering, as it provides an understanding of the process being applied holistically at a national systems level, and helps to unpack the digitalization of individual stages in greater detail. Technology can be used in a cross-cutting way to open up RVA of and for TVET among migrants and refugees at a national system level. The efforts of Kenya to establish an e-RPL system to analyse and store corresponding documentation is worth noting, particularly for its focus on enhancing the digital skills of relevant stakeholders, making the competences of migrants and refugees visible, gender mainstreaming, and ensuring ICT security (Republic of Kenya, 2021).

The use of digital technologies to simplify access and use of RPL is seen by the Kenya National Qualifications Authority as a promising development. Specifically, the use of ICTs will support inclusive counselling, assessment, and the distribution of results, which is particularly beneficial for migrants and refugees. This is because 'migration/mobility' is considered an important factor for the success of RPL (Mukhwana, 2021; Republic of Kenya, 2021). Indeed, individuals who have migrated or moved frequently may have gained knowledge and skills through informal or non-formal learning experiences that are not recognised by formal education systems. RPL can help to bridge this gap by enabling such individuals to have their prior learning recognised and accredited, thereby facilitating their integration into the education system and the workforce. The ongoing training of ICT personnel at Kenya's TVET Curriculum Development, Assessment and Certification and Assessment Council, and other organizations, will further support the rollout of this system (RPL Kenya, 2022).

It is important to note that, in practice, many current initiatives focus on the use of technology in RVA at one specific stage (e.g., portfolio development, assessment, information provision etc). Figure 10 (below) illustrates the main stages of RVA processes for TVET from a migrant's or refugee's point of view, with indications of where digital tools are largely being used at present (UIL, 2018).

Figure 10. Stages of the RVA process for TVET from the perspective of a migrant or refugee



Source: Based on UIL, 2018

The first stage, **engagement**, depends on the online provision of quality guidance on RVA processes (i.e., e-guidance) (UIL, 2018). E-guidance refers to the digital provision of information on accessing and completing RVA in a given country. This may be found on websites or provided by practitioners via digital means (e.g., video conferencing software, a WhatsApp call). Where RVA for TVET is concerned, information may be provided on how, when, and where to get technical and vocational competences recognised, along with data on professional and educational opportunities that might open up in doing so. This can enhance the accessibility of RVA processes by providing individuals with the information they need to act. Meanwhile, updates concerning new, improved, or existing procedures can easily be shared, boosting efficiency. Ensuring inclusivity at this phase is crucial for refugees and migrants, who might not be aware of existing RVA processes that can allow them to demonstrate their existing TVET competences or unlock upskilling and reskilling opportunities in their host countries, due to language barriers or a lack of access to information for other reasons (UIL, 2023).

The second stage, **recognition and documentation**, focuses on the identification and Organization of individual learning experiences, often in the format of a portfolio which can, again, be developed online (i.e., e-portfolios) (UIL, 2018). In the realm of TVET, e-portfolios "track individual student development and document learning outcomes. E-portfolios enable communication and collaboration across learning arenas in technical and vocational education and training and may include all actors involved in skills development" (UNESCO and UNESCO-UNEVOC, 2020, p. 6). In TVET environments, they are used "to help students to consolidate and reflect on their learning outcomes, outputs and processes within a course or across courses in a programme," while allowing individuals to monitor and manage their own learning (UNESCO and UNESCO-UNEVOC, 2020, p. 18).

E-portfolios can support RVA by making an individual's competences clear via a user-friendly, portable format understood by a range of stakeholders across different arenas (e.g., training sites), which can, in turn, facilitate efficient skills profiling, recognition and validation (UNESCO and UNESCO-UNEVOC, 2020). They have the potential to compile wide-ranging evidence of prior learning experiences, from digital artefacts, videos, and audio notes to qualification certificates and employer testimonies (UNESCO and UNESCO-UNEVOC, 2020; Van Den Berg, 2022). Many are free to use and accessible in terms of their format and layout, meaning they often promote more inclusive recognition and documentation that is open to marginalised groups. Ensuring inclusivity at this stage is particularly important for refugees and migrants, who may be lacking official documents with which to demonstrate their prior TVET experiences (UIL, 2023). Portfolios considering a wide range of information sources might be particularly useful tools for such groups seeking to get their technical and vocational competences recognised or engage in TVET opportunities for the first time (UIL, 2018).

Assessment focuses on evaluating one's prior learning experiences against a yardstick (UIL, 2018). Migrants and refugees may complete assessment online, offline, or in a hybrid format as they seek to demonstrate their prior TVET competences. E-assessment refers to evaluating a given individual's competences using digital tools. This may be through a short, interactive test on a digital platform; an interview via a video-conferencing application; or the assessment of an online portfolio, among other methods. In the realm of TVET, some professions conducted in high-risk environments use simulation technology for assessment (UNESCO and UNESCO-UNEVOC, 2020).

Where RVA is concerned, e-assessment can help learners to check their existing competences as well as potential gaps, often in lifelike situations (ibid.). It gives individuals an accessible way to demonstrate their prior learning, sometimes from anywhere, at any time (ibid.). E-assessment can also lead to reduced overhead costs and efficiency gains, while opening RVA for TVET to marginalised groups. The provision of accessible assessment is key for ensuring RVA is inclusive of migrants and refugees, who might face cultural, language, or gender-related barriers in their new country (UIL, 2023). Online assessment might promote the inclusion of such groups in RVA processes through minimising cost and logistical issues in some cases, but could also restrict access in others (ibid.).

Finally, the **results** stage focuses on validating assessment results and integrating RVA outcomes in learning and working systems, as well as the provision of tailored further learning options (UIL, 2018). Again, e-guidance is particularly helpful for promoting the inclusion of migrants and refugees at this point. Moreover, validation of assessment results might allow refugees and migrants to gain access to study or work opportunities that would have previously been closed to them (UIL, 2023). It can facilitate their inclusion in a given host country's labour market, as well as society in general (ibid.).

Pertinent cases of e-guidance, e-portfolio development, and e-assessment that have facilitated the inclusion of migrants and refugees in RVA for TVET will now be unpacked.

E-guidance

First, digital technologies are being used to support the promotion of RVA schemes and provision of related guidance for refugees and migrants, which is key to fostering their inclusion in associated processes (UIL, 2023). Indeed, clear, readily available information on RVA initiatives and how to access them is crucial for migrants and refugees seeking to get their vocational and technical competences recognised, validated or accredited in a given country. This can, in turn, promote their inclusion in society through supporting their search for work and access to opportunities for upskilling or reskilling.

The Anerkennung Deutschland [Recognition in Germany] website offers a key example of digital tools being used effectively to provide clear, accessible information on RVA procedures for migrants and refugees (UIL, 2022). On the website, skilled workers can explore the concrete steps necessary to get their vocational competences recognised, so they can continue working in a given profession in Germany (Anerkennung Deutschland, n.d.). They have the option to do this now in twelve (previously nine) languages (UIL, 2022). Moreover, real-life examples are shared on the website to give users an idea of RVA in action, illustrate potential outcomes, and enhance the relatability of what can often feel for beneficiaries like abstract, complex processes (ibid.). For example, as of late 2022, users could find the story of a Romanian mechanic who moved to Germany in 2014 and was recognised as a mechatronics engineer for refrigeration technology on completing refresher training (ibid.). The website ultimately promotes the inclusion of migrants and refugees in RVA through enhancing accessibility. In cases where the online guidance it provides is acted upon, it supports RVA's role as a tool for the inclusion of such groups in Germany's labour market and wider society.

Similarly, in Colombia, government web portals are used to offer information on how migrants can get TVET-related qualifications acquired abroad validated. Through its website, the Ministry of Education details procedures and requirements for the validation of certificates obtained through formal learning abroad, including technical and technological degrees (Ministerio de Educación Nacional, n.d.). It is worth noting that, on this website, sign language gifs have been added to the main menu bar to make information more accessible for users and, in turn, foster inclusion in the validation process (ibid.). This can pave the way for migrants to access jobs and learning opportunities, based on their validated technical degrees.

Meanwhile, the National Industrial Training Service in Brazil has a long and well-established process of RPL for TVET (Brazilian National Confederation of Industry, n.d.). Information on the SENAI Personnel Certification scheme is available on the organization's website, regarding exam centres and certification by profession specifically (ibid.).

Alongside these efforts, some digital tools are being used to offer information on RVA for TVET tailored to specific groups of migrants and refugees. The provision of online resources for migrant women offers an interesting case. In the Netherlands (Kingdom of the), the International Women's Centre (IVC) in Den Helder seeks to support the inclusion of female migrants in society, through supporting them in evaluating their competences and, in turn, developing a portfolio (Internationaal Vrouwen Centrum, n.d.). On completing training to help them with this, participants receive a nationally recognised certificate and ultimately enjoy greater access to work opportunities, including roles based on their prior technical and vocational competences (ibid.; Duvekot, 2016). The IVC offers information on its activities and how to register for them via its website, which also offers personal testimonies from former beneficiaries (Internationaal Vrouwen Centrum,

n.d.). In Thailand, MitrThai.com[79], an inter-agency collaboration working on promoting the protection and skill development of migrant workers from Cambodia, Lao PDR, and Myanmar who migrate to work in Thailand, has a section with information dedicated to migrant women. Both cases are examples of e-guidance being used to enhance the inclusion of migrant women in RVA processes and, by extension, society in general, through promoting accessibility via tailored information-sharing online.

Counselling can also be offered to migrants and refugees virtually to allow them to access tailored career advice based on their existing technical and vocational competences; understand what RVA opportunities are available to them; and learn about entry-level TVET opportunities or possibilities to reskill or upskill. With the country's RPL programme as its basis, Jordan's web-based employment platform provides both Syrian job seekers and Jordanians alike with access to career guidance and the chance to discover work opportunities, "with 5,503 job seekers and 92 companies registered in December 2020 and a total of 840 job vacancies available" (Giordano et al., 2021, p. 29). This, in turn, promotes the inclusion of such groups in the labour market, through the provision of effective, accessible e-guidance.

In Finland, the KATE project provides migrants and refugees with blended online and in-person guidance accompanied by "a tailored educational and employment roadmap based on [a] learner's background and skills" (UNESCO-UNEVOC and Otavia, Finland, 2019, p. 1). The initiative seeks to match beneficiaries with companies based in Finland's South-Savo region. Guidance is offered on setting up a business, independent job searches, and working life in general, while participants are supported in mapping their skills to apply for training. The initiative's effectiveness and accessibility have supported the inclusion of migrants and refugees through helping them in accessing work and educational opportunities. It has also increased the participation of women in the local labour market and helped to tackle harmful prejudices against migrant workers.

E-portfolios

At the recognition and documentation stage, e-portfolios allow migrants and refugees to present technical and vocational competences in a digital format, which can, in turn, promote greater access to opportunities for upskilling and reskilling as well as to the labour market. Digitalised portfolio development processes are becoming more widespread, as organizations like the International Organization for Migration, UNESCO and UNICEF encourage efforts to implement e-portfolio tools like Learning Passport[80] or Yoma[81], "where migrants can build their own verified digital CV," and ensure that their prior learning is recognised (International Organization for Migration, 2021, p. 31). E-portfolios have the potential to provide evidence of prior learning via different mediums, including videos of skill demonstration; voice notes; uploaded handwritten or typed documents; enrolment forms; websites; coding; working prototypes; pictures, images, and gifs; presentations; interviews; and artwork (Van Den Berg, 2022). Tools for creating evidence include, among others, SlideShare, YouTube, and Vimeo (ibid.).

At present, e-portfolios are predominantly being used to facilitate the labour mobility of economic migrants, through the recognition of their vocational competences. Europass, created by the European Commission, is a key example of this. Its online tools give jobseekers and, particularly, migrants, a clear way to show competences and qualifications gained abroad, including those related to TVET (Villalba, 2016). The initiative fosters labour mobility across borders, insofar as it offers documentation typically used in validation procedures, which enhances efficiency (UIL, 2023). It should also be noted that the complementary Europass Certificate Supplement – which is currently a paper tool – seeks to offer accessible information that makes it more straightforward for employers to understand vocational qualifications that an individual learner has obtained, through sharing the qualification's purpose, level, learning outcomes, and relevant data on the education system in question (Europass, n.d. a). This is particularly useful in cases where a migrant has obtained a vocational qualification in their home country, but little is known by employers in a given

79. https://mitrthai.com/employers/en/.
80. https://www.learningpassport.org/.
81. https://www.yoma.africa/.

host country about what this entails. In sum, the Europass promotes the inclusion of migrant workers in their host society's world of work through its use as an accessible tool that promotes efficient, effective validation (see also 'From fragmented paper-based systems to digitally connected qualification systems accessible to citizens', in this volume).

National-level e-portfolio platforms have also been developed to support the recognition of migrants' prior learning. For example, Denmark's Min Kompetencemappe [My Competence Portfolio] allows all citizens, including migrants, to provide a clear, comprehensive overview of their skills and experiences (Ministry of Children and Education, Denmark, n.d.). Users are able to share information on what they have learned to date in a range of arenas (e.g., at school, work, through training, or in their free time), including in the realm of TVET. Beyond the fact that this tool is available to all free of charge, its accessibility is further enhanced insofar as simple questions are provided to guide users in identifying their competences. Certificates and statements from employers can also be uploaded to support the recognition of an individual's prior learning. Ultimately, the platform seeks to foster the inclusion of migrants in Denmark's world of work through its use as an accessible tool that can promote initial skills profiling.

E-portfolios are also benefitting return migrant workers who seek to reintegrate into their home country's labour market, following a mobility period. Through supporting the recognition of their vocational and technical competences gained abroad, digital passports can foster improved access to reskilling and upskilling opportunities among returnees. Sri Lanka's National Skills Passport – developed by the Ministry of Skills Development, Employment and Labour Relations' Tertiary and Vocational Educational Commission with the ILO and The Employers' Federation of Ceylon – provides a case in point (International Labour Organization, 2020). The passport itself is a smart card connected to an online portal bringing together beneficiaries, employers and qualification bodies. Its end goal is to support individuals in getting skills they have developed through "hands-on experiences and informal employment" formally recognised so that, once home, they can access employment opportunities or engage in training focused on reskilling and upskilling (ibid., p. 5). This promotes the re-inclusion of returnee migrants in Sri Lanka's labour market through encouraging effective, efficient recognition.

Overseas Filipino Workers (OFW) with relevant work experience have the chance to develop e-portfolios to get their technical and vocational competences recognised (dela Rama, 2022). The candidate's documents are uploaded to Google Drive, or shared via email, where they are accessed by portfolio assessors directly. The fact that candidates are able to build a portfolio using free, popular means (i.e., Google Drive) promotes accessibility and efficiency, which results in a largely inclusive process. The initiative's use of other digital tools in the assessment of e-portfolios will be addressed later in this chapter.

E-portfolios are also supporting refugees in finding work. For example, SkillLab, in the Netherlands (Kingdom of the), has worked with partners to provide mobile skills profiling and career guidance to support young refugees in accessing employment in Egypt (SkillLab, 2022). With the support of facilitators, over 300 participants have had the chance to translate vocational and technical skills (among others), developed in informal settings, into professional CVs, through using SkillLab's CV generator. Rather than trying to develop a CV from scratch, beneficiaries were able to engage in a digital interview through which they built up a picture of their prior learning experiences. This culminated in the development of a printable CV in Arabic. SkillLab's involvement in this initiative fostered the inclusion of refugees in Egypt's labour market and, potentially, their access to TVET opportunities through promoting accessible and effective skills profiling. Moreover, in supporting portfolio development, SkillLab prioritises the security of learner data (SkillLab, n.d.). Its success to date has been widely recognised, and it was among the winners of four prizes at the 4th Global VPL Biennale (4th VPL Biennale, 2022).

In Greece, a project funded by the EU's Erasmus+ Programme focused on the development of self-assessment e-portfolios for refugees, with the aim of making the qualifications and learning experiences of such individuals visible to employers, education and training providers (I.Ref.Sos, n.d.). Via their online profiles, users can share information on their education, professional experiences and skills, including those related to TVET. While this initiative

does not lead to formal recognition directly, it is a first step through which the inclusion of refugees is facilitated insofar as it gives beneficiaries the chance to share their competences with employers and VET institutions in an accessible way.

Finally, e-portfolios permit the demonstration of a range of competences possessed by migrants and refugees, beyond those associated with TVET. Indeed, the broad remit of many online portfolios can highlight other kinds of competences that complement an individual's chance of engaging in TVET opportunities or finding a job. For example, eight partner organizations in Europe are currently working to develop an e-portfolio specifically for migrants, to support beneficiaries in the development of their soft skills and foster social inclusion (GEInnovación, n.d.). The accessible online platform will offer self-assessment tools and training on soft skills conducive to increase labour market prospects. It will encourage users to reflect on how their existing competences and experiences relate to soft skills, as well as how these may be used in professional environments (side by side with TVET-related competences, in some cases).

E-assessment

Finally, e-assessment – or the use of digital tools to facilitate assessment procedures – is becoming more commonplace. As UNESCO and UNESCO-UNEVOC (2020, p. 18) indicate, e-assessment for TVET "can… allow students to document their outputs and enable professional learning communities to give asynchronous or synchronous feedback to help students reflect on their learning processes online." Digitalized assessment aims to make RVA processes more inclusive for groups such as migrants and refugees by enhancing accessibility. It recognizes the potential of technology in improving the efficiency of RVA processes, enhancing assessment tools, refining assessment methods, and effectively communicating assessment results. Many e-assessment mechanisms have focused on evaluating technical and vocational competences which can, in turn, promote effective RVA processes that open up work and TVET opportunities to migrants and refugees in a given host country.

Germany's #Showyourskills initiative, developed by Bertelsmann Stiftung, provides a particularly compelling case. Through the use of two analogue and two digital tools, the programme allows individuals including low-skilled workers, migrants, and refugees to validate professional and transversal skills they have acquired in formal and non-formal settings (Noack and Wittenbrink, 2020). One of the tools is My-professional-experience.org[82], which allows beneficiaries to complete a simple, digital self-assessment of vocational skills, that takes just five minutes. During the short activity, users are encouraged to reflect on their prior learning through their consideration of pictures representing work-related activities "in all occupational fields of the respective occupation" (ibid., p. 160). It should be noted that the self-assessment currently covers at least 30 VET professions, which permits a wide range of vocational and technical skills to be acknowledged. This subjective exercise is typically followed by an objective assessment – where applicable – which is also digitalised. The subsequent 'MYSKILLS' assessment typically lasts four to five hours, as candidates respond to between 125 and 150 technical questions that evaluate their occupational knowledge. Ensuring accessibility for migrants and refugees is at the core of this effort, which is free of charge, offered in six languages and widely available in employment agencies across Germany. This can, in turn, promote the inclusion of beneficiaries in the process itself, in their host country's labour market and, potentially, in the world of TVET, should they seek to upskill or reskill.

Spain's online ACREDITA assessment tool offers another interesting case. Available to the general population, including refugees with residence permits, it can lead to obtaining professional experience certificates or vocational training qualifications (REInclusion, 2017). Partial accreditation is possible if assessment concludes a candidate possesses "insufficient professional competences" (ibid.). This may open opportunities for further training. As such, this tool promotes the labour market and/or VET inclusion of its beneficiaries through ensuring effective and accessible accreditation.

In India, e-assessment to support RPL in relation to technical and vocational skills is also possible. The country's Pradhan Mantri Kaushal Vikas Yojana skills development initiative offers remote assessment,

82. https://meine-berufserfahrung.de/.

through the use of video links and AI-enabled support (Tiwari, 2022). To complete this, candidates register online and select the job role for which certification is being offered. The assessor and candidate remotely use a dedicated application to conduct skills assessment on a real time basis. It records the location of the assessor and monitors the attendance of both parties. The initiative effectively promotes labour market inclusion through accessible and efficient skills recognition.

Digital regional-level assessment tools are also in place to support migrants and refugees in the initial stages of profiling their skills. In Europe, the EU Skills Profile Tool for Third Country Nationals seeks to map their competences and, by extension, supports them in their pursuit of education, training or employment opportunities through the provision of tailored advice (European Commission, n.d.). The Skills Profile Tool seeks to identify competences that could be formally recognised and includes a user's skill gaps as well as a user's skill gaps, as well as other useful skills information that could be helpful for potential employers.

The use of digital tools in assessment varies between countries in terms of both purpose and functionality. In some cases, a migrant or refugee may go to a dedicated centre or log into an online platform to get their vocational and technical competences recognised through a digital assessment. Sometimes, digital tools are used to support hybrid assessments. For instance, technology is used strategically in the assessment of OFW at their respective workplaces in countries like Singapore, Qatar, the Kingdom of Saudi Arabia, and Kuwait (International Labour Organization, 2020). With the goal of supporting certification for migrants where their vocational and technical competences are concerned, and fostering their ongoing labour market inclusion, this assessment is conducted by three assessors – one of whom is with the applicant in-person, two of whom dial in via Zoom or Skype.

As previously indicated, OFW with relevant work experience have the chance to engage in e-portfolio assessment to get their technical and vocational competences recognised (dela Rama, 2022). Each online portfolio is considered by a panel of three industry experts. Google Meet is used to provide candidates with information on the requirements of the process, interviews (as applicable), and for discussion among portfolio assessors. Efficiency and accessibility are fostered by the use of a popular, free application which, in turn, contributes to a largely inclusive assessment process. Subsequently, e-certificates may be awarded to beneficiaries. Between July 2020 and December 2021, most of those assessed worked in automotive and land transportation, while many others were involved in construction, electronics and healthcare (ibid.). Despite the increasing use of e-assessment, it is sometimes restricted to certain groups of migrants or refugees.

In many countries, existing e-assessment practices remain to be applied to the entire TVET system to enhance efficiency. In France, for example, the video-conferencing system used for the baccalauréat could be replicated to accelerate validation procedures for migrants and refugees who seek to get certain TVET competences recognised (Mathou, 2019).

Benefits and challenges of using technology to enhance RVA for migrants and refugees

Following our overall picture of the use of technology to enhance RVA for migrants and refugees, particularly where TVET is concerned, the following sub-section will outline some of the major benefits and challenges associated with this. Table 4, below, provides an overview of potential and actual advantages and difficulties, based on available literature. Key factors such as quality assurance, duration, cost, security, transparency, and accessibility are considered. The purpose of the table is to give a clear overview of benefits and challenges at different levels (i.e., individual, institutional, and system) and to clarify who these principally affect.

Table 4. An overview of the benefits and challenges of using technology in RVA for migrants and refugees

FACTOR	BENEFITS	CHALLENGES
Quality Assurance	• Digital tools can be used to promote the quality assurance of RVA processes at a system level through facilitating efficient data collection (India Education Diary, 2022). • This can help those charged with quality assurance to collect and analyse data more easily, to support their work at the institutional level. Learners may also benefit at the individual level since this can help to enhance the overall quality of RVA processes, in response to beneficiary needs (ibid.).	• In many cases, mechanisms to effectively monitor and evaluate the use of digital tools in enhancing RVA for migrants and refugees are in their early stages or do not exist at institutional and system levels (UIL, 2023). • Ensuring data collection via digital tools to promote quality assurance can have high initial costs at the institutional level (e.g., training personnel, setting up digital infrastructure).
Duration	• The use of digital tools can speed up RVA processes by increasing efficiency. This may benefit migrant and refugee learners at the individual level, through allowing them to get their prior learning recognised, validated, and accredited more quickly, accelerating their access to TVET opportunities in their host country (Mathou, 2019). • At a system level, speeding up RVA through the use of digital tools may result in increased capacity for a wider pool of learners to be engaged with (Mathou, 2019; Republic of Kenya, 2021).	• When digital tools are used incorrectly or inefficiently, RVA processes can remain slow or get stalled, which can result in individual, institutional and system level costs. This means training personnel is key, but can result in higher financial costs at the institutional level (RPL Kenya, 2022). • If users can submit applications more easily, and many more do so, it is likely to result in a huge backlog if the responsible institution maintains the same number of staff who review each application manually. This can increase costs for all.
Cost	• Many digital tools facilitating RVA are free to use for individuals (e.g., WhatsApp, Google Drive, etc). Online tools can also lower operational costs at institutional level (e.g., running a specific centre, employing personnel for in-person services) (ILO, 2020). • At the individual level, this can reduce barriers to acces. At institutional level, the use of free applications (e.g., WhatsApp) can reduce overall costs, meaning more funds may be available to train personnel and enhance overall quality in other ways (ILO, 2020).	• The use of some tools might have to be paid for by the learner, although cost-sharing models may be used to reduce this (Kenya National Qualifications Authority, 2020). At individual level, in-person services might come with a cost to learners who cannot access digital processes. • At the institutional and system levels, some tools may have a high initial development and implementation cost for providers or for a particular government department. • Maintenance costs might also be a challenge in cases where there is no clear funding model, or funding has only been sourced for initial implementation, or if learners are not required to pay.

FACTOR	BENEFITS	CHALLENGES
Security	• At the system level, some digital processes have robust data security measures in place. Many tools are encrypted, adding an extra layer of protection (SkillLab, n.d.; International Labour Organization, 2020). • Enhanced security is beneficial for individuals, in view of privacy considerations and general cybersecurity concerns. This can also enhance trust in systems and thereby increase overall usage (UNESCO, 2022).	• Where digital tools are used, risks of data leaks and security breaches can become greater (UNESCO, 2022). This is a particular concern at the individual level, for example in cases where there is sensitive information regarding the whereabouts of refugees and asylum seekers (Beduschi, 2019). At the system level, such issues can undermine trust in digital RVA processes and limit usage (UNESCO, 2022). • At the institutional level, enhanced security may increase overall cost (Rinaldi, 2023). At the individual level, this cost may be passed on to the learner.
Transparency	• Digital tools can allow information on RVA processes to be shared more transparently and accessibly online. This can be particularly beneficial for individual users and, in turn, improve the overall uptake of RVA processes through enhanced trust (Anerkennung Deutschland, n.d.).	• Transparency regarding how data is stored and used (as well as decisions taken based on this information) remains a concern (Schoemaker et al., 2020). • A lack of transparency may mean individuals are more susceptible to digital risks and, at the system level, can reduce overall trust in and usage of digitalised RVA processes (UNHCR, 2021).
Accessibility	• At the individual level, digital tools allow some RVA processes to be conducted from anywhere (without beneficiaries having to travel to a designated centre in person, for example) (REInclusion, 2017). Equally, some digital resources are available in multiple languages. This can boost accessibility for individuals (Noack and Wittenbrink). • At the system level, the promotion of accessible RVA through the use of digital tools can offer numerous benefits to society (e.g., increased integration and inclusion of groups like migrants and refugees into the labour market and society as a whole) (UIL, 2023).	• Some migrants and refugees, as well as other users, lack connectivity, access to a device and/or digital literacy skills (Safarov, 2023). • At the system level, this can contribute to expanded socio-economic divides and power imbalances, and restrict access to RVA for some (UNHCR, 2021; Latonero et al., 2019; Ganslmeier, 2019). • Questions also remain about barriers to access and use based on gender.

Source: Authors

Zooming in on risks and challenges

We will now unpack three main challenges or risks associated with using technology to enhance RVA for migrants and refugees, particularly where TVET is concerned.

First, the use of digital tools in RVA for migrants and refugees is not yet common. Few countries have developed RVA processes or systems that cater for the needs of refugees and migrants (Duvekot et al., 2020). In some cases, not all migrants or refugees are eligible to take part in digital RVA processes. For example, as mentioned above, Spain's ACREDITA tool is only available to refugees with resident permits (REInclusion, 2017). Establishing RVA processes that

cater for all migrants and refugees regardless of their legal status and TVET journeys remains a goal to be achieved.

Ensuring accessibility constitutes another challenge. Digital tools facilitating RVA should be accessible to those who have limited connectivity, and are digitally illiterate. Limited digital skills and/or difficulties with a given host country's language can result in an inability to access digital services, such as RVA for employment or TVET (Safarov, 2023). Indeed, if ensuring equal access is not seen as a priority, the increased use of digital tools in the context of RVA has the potential to result in further exclusion.

Finally, privacy and data security concerns remain a challenge. The data of all learners, including refugees and migrants, should be protected during RVA processes, particularly as this might be very sensitive for certain groups (i.e., refugees). Transparency is also key in terms of how data is stored, shared, and used. These concerns should be kept at the forefront of any effort to support migrants and refugees in getting their prior technical and vocational competences recognised, or attempts to help such groups in accessing TVET opportunities through inclusive RPL.

UNESCO's *Minding the data: Protecting learners' privacy and security* explores risks associated with learner data, particularly where EdTech applications are used. Many of the risks detailed are relevant to digitalising RVA processes. They include third-party marketing, profiling, tracking, challenges associated with assigning accountability for data protection, and security breaches, among others (UNESCO, 2022). Issues have also been raised around digital security and trust in relation to different architecture for credential data (including central repositories and exchange networks, among others), where recognising learning across borders is concerned (UNESCO, 2018). For example, in the case of central repositories, central data stores heighten the risk of security breaches or attacks, which is a clear cause for concern and can reduce trust among potential beneficiaries.

In line with this concern, a 2021 UNHCR report highlighted the specific digital risks refugees face in general, including online censorship, "cyber threats, data protection risks, disinformation and privacy harms" (UNHCR, 2021, p. 4), adding that the impact of each differs according to age, gender, and other characteristics. It concluded that "while connected refugees recognise the importance of security and privacy online, they often feel powerless to do much about online threats and digital risks" (ibid.).

Moreover, much discussion on data and privacy for refugees or migrants relates to digital identity systems. Technologies depending on identity data have the potential to stoke biases and widen power imbalances, with data protection and privacy often compromised during the process of identifying migrants and refugees (Latonero et al., 2019). Often, for example, information is not provided in an individual's native language, which can heighten such imbalances (Ganslmeier, 2019). Moreover, in practice, reports suggest that data handling is not always conducted as responsibly as it should be, according to pre-defined standards or regulations. As such, while digital identity technologies can enhance the visibility of refugees, they also have the potential to jeopardise data protection and privacy rights (Beduschi, 2019). Providers thus have a key role in protecting human rights. They may take steps to achieve this through offsetting risks of discrimination and establishing high privacy standards.

There is a lack of research on these broad issues in the context of digitalising RVA for TVET where migrants and refugees are concerned, which makes it difficult to address them head-on. Nonetheless, some broad measures have been taken to ensure data protection and transparency around digitalised RVA processes for such groups. For example, Europass has a page that shares how users can manage their profile information, as well as what it is and is not used for (Europass, n.d. b). It also provides a few general tips (i.e., encouraging users to always know the identity of anyone they share their profile information with) (ibid). Make it in Germany's Privacy Policy page is also particularly comprehensive (Make it in Germany, n.d.).

Beyond this, innovative approaches to data protection that rely on artificial intelligence have also been developed, although this is not yet widespread where RVA for migrants and refugees is concerned. SkillLab in the Netherlands (Kingdom of the) stands out as an example of best practice for this particular element. Its "cloud service provider is ISO 27001 certified and maintains an extensive security infrastructure to prevent unauthorised data access" (SkillLab, n.d.). Such approaches may

promote inclusion through increasing the uptake of digital RVA processes, as a result of greater trust among refugee and migrant beneficiaries. As we have seen, the completion of such processes can, in turn, encourage the inclusion of such groups in host societies.

Factors that help reinforce the practice of RVA for inclusion using digital tools

Following our exploration of challenges, this chapter will now unpack some best practices of digital RVA processes that could have a direct, beneficial impact on different groups of migrants and refugees. Based on our research, one central strand is clear: successful efforts to use technology in facilitating RVA for migrants and refugees should have inclusion at their core. This may be promoted through using digital tools to promote accessibility, efficiency, and effectiveness.

Reach different kinds of migrants/ refugees using digital tools

Digital tools in the field of RVA for TVET should address the diverse needs of migrants and refugees. This includes guidance, portfolio development, and assessment. When it comes to assessment, it is crucial to prioritize technology-enabled assessments that allow for personalized evaluation. These e-assessment methods can enhance accessibility and contribute to inclusive RVA.

Germany's #Showyourskills recognises and caters for the needs of distinct groups particularly well. It looks to support both refugees and low-skilled citizens seeking to demonstrate their technical and vocational skills, as well as migrants who have already built up several years of experience in their respective sectors, yet lack formal documents to prove this (Noack and Wittenbrink, 2020). The needs of returnee migrants should also be considered where TVET is concerned. Sri Lanka's National Skills Passport provides an illustrative best practice case where recognition for such individuals is addressed, and their inclusion in work and reskilling and upskilling opportunities prioritised (International Labour Organization, 2020).

Keep it simple

The use of digital tools in RVA (particularly where digital passes or badges are concerned) should be kept as simple as possible (dela Rama, 2022). This is particularly important insofar as some migrants and refugees may have low levels of digital literacy, and, in some national contexts, digital literacy may be low in general. Indeed, technology should play a role in simplifying processes for compiling, developing, and submitting evidence, and online repositories for RVA should be easily understood by employers, and education and training authorities.

One way of ensuring simplicity is through the use of applications or platforms beneficiaries already use for other purposes and are, as such, familiar with. The use of WhatsApp by the Embassy of Bangladesh in the Kingdom of Saudi Arabia to support the recognition of prior learning among migrant workers through guidance provision and the easy submission of documentation stands out as a case of best practice in this respect. Zoom, Google Meet, and Skype might also be used for guidance provision or interviewing, to simplify processes and make them more accessible to migrants and refugees seeking to get their technical and vocational competences recognised, or wishing to use RPL to access TVET opportunities.

Websites offering guidance – such as Anerkennung Deutschland [Recognition in Germany] – are also effective complementary tools that seek to simplify RVA processes, something particularly beneficial to migrants and refugees in a new country. Meanwhile, if a new platform is developed to support RVA for migrants and refugees, it should be as easy to use as possible, with intuitive navigation in a user-friendly format. The simplicity of Europass and Denmark's Min Kompetencemappe, both as concepts and in terms of their actual use, provide examples to follow. This is particularly crucial where the development of e-portfolios is concerned. If these are complex, beneficiaries may be discouraged from pursuing recognition processes, with work and TVET opportunities available to them remaining limited.

Ultimately, keeping the use of digital tools for RVA simple can promote accessibility which, in turn, fosters the inclusion of a wider range of migrant and refugee beneficiaries, as well as others.

Remove language barriers and promote cultural sensitivity

Digital tools should cater to the different needs of migrants and refugees seeking RVA of and for TVET through providing accessible content in different languages. Research into the specific needs and profiles of migrants and refugees arriving in specific host countries can help inform which languages a given tool is made available in. Where e-guidance on RVA for migrants and refugees is concerned, the Anerkennung Deutschland [Recognition in Germany] website is available in 12 languages, including English, Arabic, German, French, Greek, Italian, Polish, Romanian, Russian, Spanish, Turkish, and Ukrainian. This enables migrants and refugees to access information on how to obtain recognition of their technical and vocational competences in a straightforward way, as language barriers become less of an issue.

Where assessing the actual and formal competences of migrants and refugees is concerned, Germany's my-professional-experience.org demonstrates how inclusivity in assessment can be fostered through the use of pictures and videos, multiple languages (in this case German, English, Arabic, Farsi, Russian, and Turkish), and a culturally sensitive approach (Noack and Wittenbrink, 2020). Indeed, cultural sensitivity is key where digital assessment is concerned, particularly when images and examples are used.

The European Commission's EU Skills Profile Tool for Third Country Nationals provides another compelling example of where language barriers have been successfully addressed, as migrants and refugees take steps to explore which TVET opportunities might be suitable for them. The tool is available in all EU languages (except Irish[83]) as well as Arabic, Farsi, Pashto, Sorani, Somali, Tigrinya, Turkish, and Ukrainian (European Commission, n.d.). Helpfully, users completing an assessment can view two languages simultaneously on the screen which, again, supports accessibility. Removing language barriers and promoting cultural sensitivity in the use of digital tools can encourage accessible RVA and, by extension, foster inclusion regarding both engagement in specific processes and their outcomes.

Monitor and act on what the learner has to say

Technological solutions should be accompanied with measures to assess impact at the individual level (eg., looking at how many users actually benefitted from the tool out of the total pool; how much faster or slower, or how many more applications were processed; or the user's increased comfort or discomfort with the digital version, versus the paper-based or in-person versions of a given tool or process). Available data suggests there is still much room for progress in this respect. However, SkillLab's work stands out as a best practice case. Following its work to support refugees in finding work in Egypt through facilitating e-portfolio development, the Organization and its partners held follow-up meetings and distributed post-project surveys (SkillLab, 2022). These encouraged beneficiaries to reflect on the Skillmap application's user-friendliness, as well as its utility in helping them to identify their skills and develop a CV.

Listening to the learner in the use of digital tools for RVA can enhance accessibility, efficiency and effectiveness, each of which promotes the inclusion of migrants and refugees, both in related processes and, by extension, within wider society.

Use digital tools to pave the way for future TVET opportunities

Where possible, digital tools in RVA should be used to connect migrants and refugees directly to a range of future TVET and work opportunities, to promote effectiveness. ACREDITA in Spain does this particularly well (REInclusion, 2017). This allows the recognition of prior TVET to open opportunities conducive to the inclusion of migrants and refugees. This can also offer scope to foster upskilling and reskilling.

Ensure data security and privacy

Data security should remain a core principle in the use of digital tools to enhance RVA, and privacy concerns should be responded to appropriately. Transparency is also required concerning how data is stored, shared, and used; this is necessary to build trust among stakeholders (particularly beneficiaries) and encourage optimum use. This is particularly

83. Although it is an official EU language, only 17% of Ireland's population speaks Irish, therefore the language has a different status within the EU's multilingualism commitments.

crucial in the case of refugees. Indeed, a 2020 study on refugee experiences with digital identity systems in Lebanon, Jordan, and Uganda concluded that beneficiaries had little to no knowledge of the processes through which their personal information was being used, and lacked choices with regards to data collected on them (Schoemaker et al., 2020).

The case of SkillLab in the Netherlands (Kingdom of the) provides a compelling example of best practice, where artificial intelligence is used to ensure that data is managed in a secure manner. The increased user trust that typically accompanies robust data security and privacy measures can encourage uptake among migrants and refugees, facilitating their inclusion both in RVA for TVET and, by extension, their host society.

Adopt a gender mainstreaming approach

The use of technology in enhancing RVA processes and systems for migrants and refugees where TVET is concerned (and in general) should have gender mainstreaming at its core. In line with recommendations from UNHCR, the ILO, and others on TVET for migrants and refugees, the use of digital tools in RVA processes for such groups should consider access barriers associated with gender and promote use by different genders to maximise inclusion both in RVA processes and wider society (Giordano et al., 2021). However, it is worth mentioning that much research is still needed in this area. The experiences of women and girls have scarcely been examined to date, based on our review of the literature.

Conclusions

Through enhancing RVA processes, technology can and is contributing to efforts to realise and facilitate the potential of TVET, lifelong learning, and competence recognition for all, including marginalised groups like migrants and refugees. The development of e-guidance, e-portfolios, and e-assessment in many countries is allowing these groups to get their technical and vocational competences recognised across borders, while paving the way for them to access TVET-related opportunities. The use of digital tools in the case of RVA for TVET is promoting the inclusion of migrants and refugees, through enhancing the accessibility, efficiency and effectiveness of recognition, validation and accreditation. Furthermore, the digitalization of complex processes can streamline and accelerate otherwise lengthy paper-based assessments, as well as reduce costs.

The challenges identified in this chapter can be addressed through:

- Taking steps to respond to diverse sub-groups with varying needs and goals in terms of TVET;
- Keeping the use of digital tools in RVA simple;
- Making an effort to remove or reduce language barriers and promote cultural sensitivity;
- Connecting users to TVET opportunities through digitalised RVA processes;
- Monitoring and acting on what the learner has to say;
- Ensuring data security and privacy is a central priority; and
- Adopting a gender mainstreaming approach.

Multiple stakeholders should be brought onboard in these efforts – particularly private sector organizations – in line with UNESCO's TVET Strategy 2022-2029 (UNESCO, 2021).

In sum, digitalising RVA is a new and growing area. There is still limited data on the full impact of digital tools on RVA for migrants and refugees. There is therefore great scope for further research on how far digitalising RVA can go, as well as how far the results of such processes are being accepted more broadly by employers and other key stakeholders in TVET, beyond project-based initiatives. Different areas of skills development within TVET are increasingly being supported by the use of microcredentials, including digital badges and online bootcamps. Exploring the digitalization of RVA associated with these credentials is a matter of increasing interest.

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Conclusions

Enabling individuals to access education and secure employment opportunities within and across borders is a policy goal for most countries. Therefore, they recognise the need to navigate the complex territory of the validity, transferability, and recognition of qualifications, and that establishing functioning and effective NQFs and RQFs can be a means to achieve this. The benefits are indisputable; for the careers of individuals, for social cohesion, and for national and regional economies. And while the level of global and technological uncertainty within which NQFs and RQFs operate continues to grow, so does commitment to their implementation.

As always, there are challenges. Qualification systems and qualifications frameworks strive to keep pace with technological advances to ensure qualifications are relevant and accessible to populations and responsive to the needs of the labour market. And in the post-pandemic context, people's expectations of work, and working methods and culture, are likely to continue changing, as they, employers, and learning providers all adapt to rapidly changing job roles and skills requirements.

In this final chapter we summarise the conclusions arising from our analysis of national and regional qualifications frameworks, and our broader work in the area of qualification systems presented and discussed in this volume.

1. No country has dropped or abandoned its qualifications framework. None has ceased to exist. This suggests NQFs are useful overall. If they are still going, they must be making some contribution or having some impact, given that policy makers have a choice and could decide to drop them. The majority of the 93 NQFs studied for this edition of the Inventory are being used, many have been operational for long periods, and they are maturing through use. Numbers are still increasing too, notably in Latin America and Africa.

2. RQFs and donor projects have triggered or facilitated the establishment of NQFs, and promoted them, in most countries across the globe. Although some NQFs start from such external drivers, they gain more relevance and effectiveness once they are embedded in local structures, while retaining links to the relevant RQF for transparency and recognition purposes.

3. Despite the ongoing change all around them, NQFs have been converging for some years around certain principles, of which learning outcomes is the first. Other core principles include establishing defined level descriptors which capture an increasing degree of proficiency and complexity at each level, quality assurance of levelled qualifications, and allocating credit based on achievement rather than the amount of time spent.

4. NQFs therefore reinforce the value of learning outcomes in qualifications, and the more advanced frameworks are being used by employers to recruit people, using the levels and learning outcomes both to attract candidates and to clarify job role expectations, while education and training providers use them to inform admissions decisions.

5. Most frameworks are comprehensive in their coverage of all types of formal educational qualifications, and this trend to holistic system coverage is set to continue. While most do not yet admit 'non-traditional' qualifications such as microcredentials, or qualifications from private providers and specialist institutions, the number that do so is growing. It seems that the more advanced and the more operational a framework becomes, the more open it is to other market-based, non-formal qualifications. Overall, therefore, NQFs are progressively more and more life-wide and lifelong learning in character.

6. Both the supply of and demand for microcredentials are increasing, but it is uncertain if this is aligned with the growth of 'stacking' – i.e., combining microcredentials to approach or achieve the level of a full qualification – due to the non-modular nature of many vocational microcredentials.

7. Microcredentials now proliferate, but how countries respond to them, e.g., by incorporating them or not into NQFs, varies greatly. For example, there is considerable variation between European countries, even with guidance and proposals from the EU and growing take-up of microcredentials among people living in EU member states.

8. Long-term, national policy thinking is needed to build the conditions for recognition and portability of microcredentials, and guidance is needed to ensure quality, connect validation with certification, and integrate short-form credentials into qualifications frameworks.

9. Frameworks can be seen as having two broad types of function – communication and reforming. Countries with established education and training systems, usually in the higher-income bracket, may design an NQF to communicate more effectively their existing qualification system and qualifications. Reform frameworks are more regulatory in nature, seeking to drive change to improve the relevance of qualifications to learners and labour markets; they are often found in transition economies. However, these are not mutually exclusive functions.

10. Digitisation holds out the prospect of liberating qualification systems from the fragmentation and inefficiency of paper-based systems. Online, app-based, and other digital platforms can be used to enhance transparency, comparability, and recognition of qualifications. Qualifications databases and easily accessible digital tools for learners and jobseekers facilitate understanding, visibility, and international recognition of qualifications. In the European context, instruments such as the EQF, Europass, ESCO, and ELM play an increasingly important role in this.

11. Digital systems provide expanded access to information on skills and qualifications, enabling integration with employment and learning data. Interoperable digital qualification systems promote international cooperation, trust, and support for individuals' lifelong learning and mobility.

12. Digital technology is also increasingly used in recognition, validation, and accreditation (RVA) processes. Tools like e-guidance, e-portfolios, and e-assessment facilitate competence recognition and access to opportunities for marginalised groups, particularly migrants and refugees. Digitisation improves efficiency, effectiveness, accessibility, and affordability of RVA, promoting inclusion and streamlining assessments.

13. A multi-stakeholder approach, including the active involvement of private sector organizations, is required to meet the needs and goals of diverse groups in terms of TVET qualifications and their validation. This, in turn, requires the use of digital tools in RVA to be kept simple, in order to encourage adoption. It also requires proactive gender mainstreaming, sensitivity to cultural issues and efforts to remove or reduce language barriers.

14. Listening to, and acting on, the views of individual learners is important for connecting with and engaging marginalised groups, who are frequently experiencing stressful circumstances. However, the information capture and management that is central to all digital systems must be subject to appropriate checks and balances to ensure data security and privacy, especially for the most vulnerable groups.

15. Digitising RVA is a new area, and there is limited data on the impact of digital tools on RVA for marginalised groups, particularly migrants and refugees. It also needs to be explored in conjunction with trends and developments in other areas, for instance microcredentials. The development of user-friendly elements in TVET, such as digital badging and online 'bootcamps', represents an area of particular interest in relation to the digitisation of RVA.

16. Similarly, improving efficiency and effectiveness of systems for validation of non-formal and informal learning can be understood by exploring the issues from four specific perspectives. Combining individual, skills strategies, certification, and methodology perspectives offers many insights into the success and failure of developments in validation. Further research into specific aspects of validation – such as financing, stakeholder involvement, and reference points and standards – could create important new opportunities for peer and policy learning.

17. Frameworks can support learner progression and improve qualifications if they are linked with other education, social, and labour market policies. However, it is hard to isolate the benefits people receive from the impact of NQFs precisely because of this intended close relationship with other policies, systems, and tools.

18. The obstacles that NQFs encounter vary as they progress. Mobilising stakeholders is the biggest challenge during the earlier stages of a framework's development. Those frameworks reaching the intermediate stages frequently confront technical issues, such as levelling qualifications, while the more advanced NQFs may struggle to achieve visibility among their intended users.

19. To counter these difficulties, as their frameworks become operational NQF authorities expend more resources on communicating both with institutional partners in implementation, and with learners.

20. The agenda will continue to evolve, and the willingness of policy makers to invest time, money, and political backing in NQFs and wider qualification systems is a key enabler of their success. As countries progress with the use of NQFs, more will monitor, formally review, and refine or reshape them.

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Global Inventory of National and Regional Qualications Frameworks 2022

Volume I — Thematic chapters

This Global Inventory of National and Regional Qualifications Frameworks is the result of long-standing collaborative work between the European Centre for the Development of Vocational Training (Cedefop), the European Training Foundation (ETF), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the UNESCO Institute for Lifelong Learning (UIL).

Volume I continues the role set by previous editions, presenting insights and knowledge from different contexts where regional and national qualifications frameworks are in place across the world. It serves as an observatory, shedding light on advancements and identifying areas that need improvement in line with emerging trends and policy priorities.

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4 QUALITY EDUCATION

Sustainable Development Goals