The Qualification Data Repository (QDR): Enhancing Interoperability of Qualifications in Europe

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Introduction

The need for transparent information on qualifications and learning opportunities across Europe is essential to support recruitment, career management, lifelong learning strategies and recognition processes. This requires stakeholders (awarding bodies, Member States authorities, employment services, education/training institutes, social partners, jobseekers, learners, employers, etc.) to cooperate with each other, to share information and to develop a common understanding of information relating to qualifications, occupational experiences and skills acquired in other countries.

The Qualification Data Repository

The Qualification Data Repository is a software component that allows providers of data on qualifications (awarding and training bodies, national authorities about officially recognised qualifications and accreditation and other quality assurance bodies), to upload datasets for publication on European web portals (such as the "Learning opportunities and qualifications" portal, the ESCO portal or EURES Drop'pin), in online services (such as job matching features of EURES or CV creation in Europass) and in semantic assets for republication as part of an interlinked data set (such as ESCO or national classifications).

A common Qualification Metadata Schema (QMS) ensures that qualifications are described in a consistent manner by all data providers and can be brought together at European level, while the DCAT vocabulary[1] and its subsequent Application Profile (DCAT-AP) guarantee the dataset versioning. The data providers upload and manage the datasets on qualifications to the QDR, and from there information on qualifications can be published on the Learning Opportunities and Qualifications in

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[1] https://www.w3.org/TR/vocab-dcat/

Europe Portal[2], in the ESCO qualifications pillar[3] or in Europass. The implementation of the first phase of QDR has been finalized and the system is currently being tested for production at the Commission environment, being gradually used by Member States.

Both QMS and QDR are the first initiatives at a European level that foster semantic and technical interoperability and data publishing relating to Qualifications in Europe and an overview of the qualification data publication process is depicted in Figure 1.
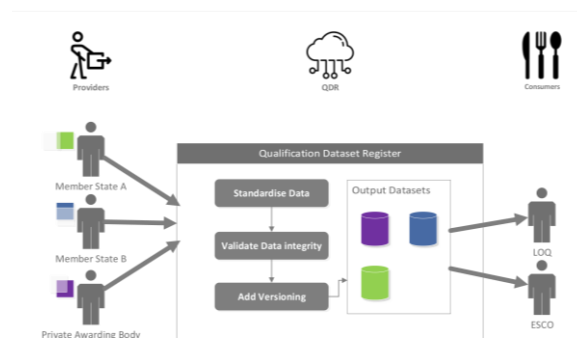

Fig. 1 Overview of the publication process

QDR provides 3 different ways through which qualification data providers can submit their data. Manual submission, where the data provider publishes a new dataset, using the QDR UI front end and publication of a dataset in an automated way, where the data provider submits and updates the datasets continuously and through an automated process involving data harvesting from pre-defined URLs.

QDR is expected to process up to 25K qualifications per dataset, a number that can be easily handled by the software. Two main types of data validation are being performed in order to provide quality. First a regular XSD validation and secondly a validation against the application profile. In this way we can validate cardinalities, controlled vocabularies and class constraints (e.g. that no two qualifications have the same homepage).

Developing QDR was not an easy task. Among the various lessons learnt, two of them are important to mention. Despite the fact that the software can successfully handle a big amount of qualifications (per dataset) consideration of the size of the datasets which will be processed by the tool needs always to be in place. Especially for the versioning and validation of 10k+ concepts can be quite a challenge if the HW if not properly optimized. A second case was that we realized that it is not at all convenient to directly work with RDF data directly from the frontend, therefore we implemented a layer around it to enable interaction using JSON REST API.

QDR has been a successful project and will evolve in the (near) future. Things that have already been foreseen by the EC involve support for distributed publishing, direct editing of qualification metadata in the platform and de-duplication of information.

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[2] https://ec.europa.eu/ploteus/
[3] https://ec.europa.eu/esco/portal/home