

Technical recommendations and strategic considerations for Higher-Ed leaders to introduce European Digital Credentials for Learning

Overview

The context for this report is based on the lessons from the Micro-Credentials Exchange (MicroCredX) project, a three-year micro-credentialing pilot. Its main output, the MicroCredX Course Catalogue, features **over 30 virtual courses from five dual universities – all giving students the possibility to be awarded with a European Digital Credential for Learning.**

These micro-credential courses were developed by unbundling existing study programmes at EQF level 6 and 7. The most popular courses were derived from subjects such as Computer Science, Engineering, Business Administration, Sustainable Development, IT Accessibility, Education and Legislation.

The project tasked university partners to enable virtual student exchanges, allowing credit acquired from MicroCredX courses to be automatically accumulated in completion of students' home programmes. At its final phase, **the partnership is issuing verifiable European digital credentials based on the European Learning Model.** In conjunction, discussions are ongoing on how to expand the MicrocredX network of providers offering and accepting micro-credentials for academic credit transfer.

A brief introduction to European Digital Credentials for Learning and the European Learning Model is provided before deriving the project's lessons and recommendations.

Introduction

A **European Digital Credential for Learning (EDC)** is a multilingual format for **electronically sealed**, digital presentations of learning credentials. They can be awarded in the context of formal education, training, online courses, volunteering experiences, non-formal learning etc., and can take the form of degrees, micro-credentials, certificates of participation, or any other type of learning records.

[Issuing](#) or [viewing](#) EDCs is possible on the Europass portal's Online Credential Builder and the EDC Viewer, while higher education providers can customise and integrate these tools into their own IT systems by making use of the [open-source](#) options.

Summarised into three main technical requirements, EDCs are issued when:

1. The **issuing organisation is verified** with an electronic seal (e-Seal).
2. The **credential is built** by inputting, uploading, or importing the required data into the EDC Builder.
3. The **credential is sealed and sent**.

In comparison to paper-based credentialing, European digital credentials are more agile because:

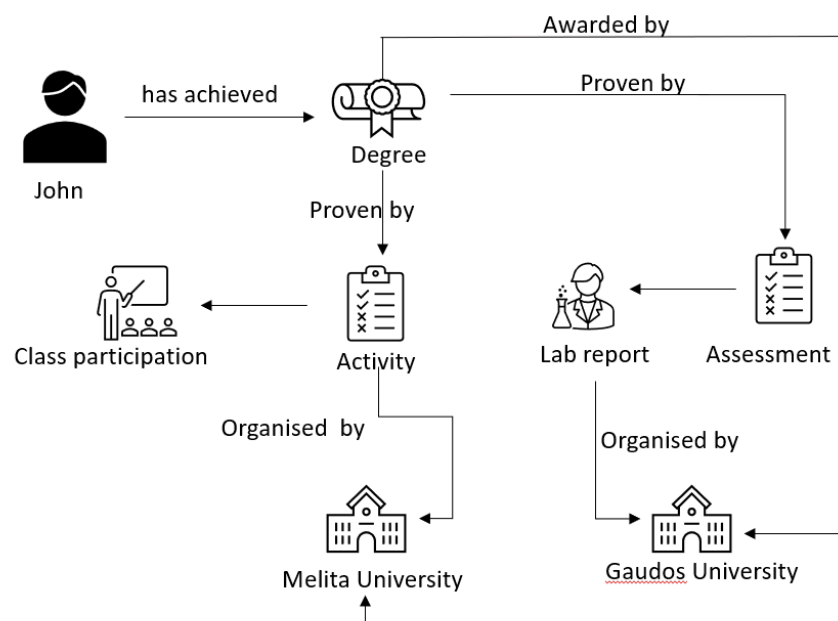
- *Education providers can reduce credential fraud by using secure digital technologies.*
- *Education providers can reduce costs and streamline administrative processes upon reaching the critical mass of a mobility and credentialing system that is not built as separate software packages but are ecosystems of software, with different providers each connecting different applications to the network.*
- *Learners can access their digitally certified academic records online.*
- *Learners can securely share their records with third parties, quickly and easily.*
- *Employers and other credential viewers that are authorised by credential owners can quickly and easily verify learners' academic records.*

(More detailed information on the benefits for [issuers](#) and [holders](#) of European Digital Credentials).

EDCs are designed to promote cross-border recognition of credentials. To this aim, they are based on multilingual semantic standards coded in 29 languages. These standards make up the European Learning Model (ELM) – which is also an openly licensed technology.

Compared to paper-based certificates, the ELM provides a more data-rich format and vocabulary to describe all things related to learning towards employers and learning providers. It enables the use of international, inter-sectoral and domain specific skills taxonomies such as the [European Skills, Competences, and Occupations](#) (ESCO) classification. Integrated within the ELM are existing European frameworks and vocabularies (such as the European Qualifications Framework). The ELM also aligns with international standards for Verifiable Credentials (developed by the W3C).

The ELM's ontology is programmed by linking the relationship between different data points. This makes it possible for computer systems in different countries and organisations to make sense of this data even when it is translated into other languages. For example, in the case of EDCs, the ELM can distinguish and demonstrate the relationship between the identity of the credential holder as well as their associated learning achievements, activities, assessments, entitlements and grades. Rudimentary examples of links which the ELM can map are provided in the figure below.



Besides using the ELM to describe, issue, and view credentials, other uses include:

- Describing learning opportunities and qualification standards for course catalogues, training announcements and learning opportunity databases.
- Describing non-formal and in-service learning offered by employers in a standardised format.
- Issuing student cards, evidence of membership of e.g. professional associations, teacher cards and other identity documents linked to learning.
- Publishing information on licensing and accreditation of educational institutions and/or their programmes, as well as issuing accreditation credentials to licenced or accredited organisations.

[Source](#).

The next section proposes how to **integrate the issuing of EDCs where this has not been done by a higher education institution before**. Ideally and with more experience, future pilots could investigate the integration of the ELM for more than one use-case, e.g. to both issue and recognise credentials.

Lessons and recommendations

These lessons and recommendations address the issuing of EDCs where this is a novice practice for higher education providers. At the time of writing this report, many of the MicroCredX partner universities were still in the process of integrating the EDC Issuer into their universities' credentialing operations.

Strategic lesson 1: Getting buy-in at an institutional level is a continuous process requiring fit-for purpose and evidence-based leadership. This is especially applicable where HEIs operate via collegial governance models and/or with a high degree of unit level autonomy.

To decide which kind of leadership is best suited to begin issuing EDCs, it is important for institutions to consult their strategy – why, and why not issue EDCs? Are EDCs going to be issued for micro-credentials, degrees or attendance certificates? What data from existing paper certificates needs to be kept within EDCs? Via EDCs, what new data and use-cases are valuable to the recipient as well as the institution's reputation, recruitment, and revenue?

Ideally a consultation process maps out the answers to these questions along with all operations which will be in some way affected by the implementation of EDCs.

Technical recommendation 1: Adapt a business canva model to support the development of a strategic and operational plan for implementing EDCs. The MicroCredX project has piloted an adaption to the business canva model for the purpose of developing institutional strategies for micro-credentialing.

Technical recommendation 2: Take stock of what resources are required for existing:

- *IT infrastructure to integrate EDC and ELM software.*
- *Capacity and human resources, from researching to issuing EDCs.*

The use-cases of EDCs and the functionalities of the new credentialing system (from creation to distribution and validation) need to be modelled according to the desired scale of implementation. Requirements for intra- and inter-institutional interoperability of EDCs, data security and user experience should be clearly formalised. Additional functionalities may be considered – such as to simplify by automation processes for transferring of data from Student Information Systems and Learning Management Systems for credentialing purposes.

Having mapped the necessity and opportunities to implement EDCs, one may then assess the feasibility of leadership approaches to implement such changes. Whether a more managerial, collegial and/or other leadership approach is required can be better formalised and tailored by future review processes structured for continuous improvement.

Upon agreeing if and how EDCs will beneficially fit within an institutional management system, the next practical step is to **acquire the eIDAS electronic seal**. *...something more about eIDAS?*

Strategic lesson 2: Prioritise in-house EDC issuing in short-term funding (e.g. 1-3 years), and the recognition of external EDCs as part of longer-term pilots (> 3 years). Always prioritise research and peer-learning opportunities.

MicroCredX partners navigated a variety of legal, policy and operational challenges in implementing changes to their credentialing systems. From restrictions set by legal mandates from government licensing and funding, to requirements from quality assurance. With the variety of new functionalities which could and need to be introduced to an existing system, it is often helpful to start with staff resources before integrating new technologies for EDCs.

Technical recommendation 3: Fix strategic discussions regularly for all relevant staff to address common needs, role assignments and how to prove impact of EDC implementation. Set mechanisms for ensuring a closed feedback loop as many roles within an institution are impacted or involved in some way. From governing boards to staff, students and stakeholders. The metrics for evaluating progress should be specific, measurable, achievable, relevant, and time-bound (SMART).

Technical recommendation 4: Communicate the results with relevance to various audiences. Research and peer learning should be incentivised for academic and professional advancement and to encourage intra- and inter-institutional collaboration.