BADGE QUALITY SYSTEM

Date: 1 July 2022.

**Digitally Signed Credentials
and Open Badges in VET and HE**

disco VET
online badges & credentials

Authors

Dénes Zarka

Editor

Eva Szalma

Acknowledgement

Based on the already started quality definition work in OEPass, MicroHE and MicroBol projects

Pictures

© All partners.

Copyright

Materials may be used according to the Creative Commons License Non-Commercial Share Alike:

DISCO VET consortium

Coordinator:

Budapest University of Technology and Economics, Hungary

Partners

Vytautas Magnus University, Lithuania

Militos Consulting S.A., Greece

Ogres Tehnikums, Latvia

ITC Innovation Training Center, Spain

Knowledge Innovation Center, Malta

https://www.discovet.eu/

TABLE OF CONTENTS

Introduction

Quality assurance in case of Open badges needs complex approach. As the OB standard is widely open, open badges may represent declarations about institutions, product compatibility as well as declarations of different affiliations identity, membership, honours and last but not least educational credentials. This paper tries to cope with this diversity in the light of rapid growth of the subject area.

The first objective of the DISCO project is to build on the possibilities of the open standard of Open Badge 2.0 to work out a meaningful VET and CPD data structure of course and content typology (VET level, VET sector, target, length, etc.), based on EU VET standards, on the OEPass – Open Education Passport project's research findings, on the newly developed EDCI (Europass Digital Credential Infrastructure) standards for interoperability, and on the partners own national standards and classifications. The result will provide a grid of extra metadata accompanying a Badge. This system would enable better mapping and manageability of their badges for VET and HE providers and other stakeholders.

The second objective of the project is to develop an open source sample displayer platform (repository), where educational providers and learners alike could collect (issue, earn, store, view) their badges with more meaningful and more comprehensive searching possibilities, than internal repositories (like Moodle or Canvas) or third party products (like Credly or Canvas Badges) are offering now. Owning the displayer repository by consortium partners would enable us bridging it to EDCI, as well as the rights to further develop the software.

The final outcome O4 Activities will carry out a strong validation of the platform, using events and collaboration with experts, and validation institutions like 1EdTEch. The resulting User guide and Lessons Learnt Kits will transform them into a complete, organic and easy to communicate set of multimedia publication, that will help OB researchers and developers to understand the benefits and of a system developed in DISCO VET project, and to be able to build on the results of this project.

The present activity report (O4-A2) of Badge Quality System will cover:

Based on the already started quality definition work in OEPass, MicroHE and MicroBol project this activity will clarify the most practical way of setting criteria towards an easy to use quality system within the framework of Open Badge specification. This system will try to avoid to duplicate content accreditation processes but also the highly technical dimensions of the OB ecosystem.

Typology of credentials towards

During a relevant project (OEPass) it has developed an enhanced typology that was extended in the light of development project that were adding new structures to credential and badge typology. The suggestion in OEPass was the following diagram below:
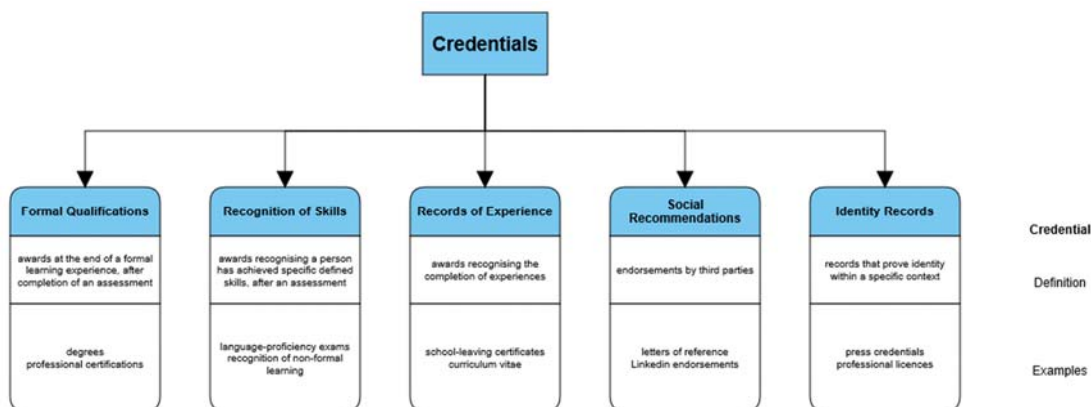
During the process of analysing similarities and differences between collected credentials in OEPass research, it was experienced that by distinguishing different content and technical oriented categories, already introduced brands and standards with well-known names can be observed as well.

The type of badges are even wider in issuing digital credentials that was also discovered by developers of European Digital Credential for Learning a wider typology:

ACHIEVEMENTS

A Learning Achievement describes the acquisition of one or several learning outcomes. You may describe these, as well as related achievements, activities or entitlements, using the respective tabs. From the achievement form, you will be prompted to make references to these elements.

LEARNING OUTCOMES

A Learning Outcome is a statement regarding what a learner knows, understands and is able to do on completion of a learning process, which are defined in terms of knowledge, skills and responsibility and autonomy. Learning outcomes can also relate to knowledge and skills described in standardised classifications, such as ESCO

ACTIVITIES

A Learning Activity is a process which leads to the acquisition of knowledge, skills or responsibility and autonomy. It can be described in terms of a distinct start and end date, a specific location and workload.

ASSESSMENTS

An Assessment is the result of a process establishing the extent to which a learner has attained particular knowledge, skills and competence. Assessments can be linked to a specific grading scheme that rates the learner's performance at the assessment.

ENTITLEMENTS

An Entitlement describes a right, e.g. to practice a profession, take advantage of a learning opportunity or join an organisation. Entitlements may be limited to a specific jurisdiction.

Focusing on educational digital credentials, easily identifiable brands are on the market: Micro-masters, MOOC credentials, and technically: digital Europass certificates, and Open badges.

Disco VET Course on credentials examined in detail the first three credential types. This smaller world of credentials could be represented along the following tensions:

Bundled vs. Unbundled

Credit vs. Non-credit

Career development vs. Personal interests

- **Bundled credentials**= others call them stacked credentials. They consist in learning opportunities that built up one another. They are usually but not exclusively "bundled" or "stacked" by the awarding organisation or provider.

- **Unbundled credentials**= Learning where the choice of distinct subjects is upon the learner (learner creates hers/his own "bundle")

- **Credit bearing**= Formally accredited

- **Non-credit bearing**= Non-accredited by a formal body or institution

- **Career focused**= Consisting of subjects leading to further degrees or professional certifications

- **Focused on personal interests**= Not related to professional pathways necessarily, but instead, accounting for personal development or aspirations

This Disco VET typology helps in better understanding how several forms of learning in terms of acquisition or further development of knowledge and skills can be associated with or differentiated from each other, with respect to credentials type they lead to.

In this schematic approach we can for example see that a University degree is a credential that is rather bundled (following a standard curriculum), formally accredited, and career focused.

A micro-credential on the other hand could be unbundled or bundled, formally accredited (e.g. as the result of a short-term learning activity or course by an accredited educational body), non-formally accredited (e.g. as offered by a private organisation or company).

Lastly, a micro-credential could equally serve the purpose or learning goals of a learner/user, which are more interests-driven than career-driven (e.g. the case of taking some semi-formal or non-formal course on non-academic subjects like soft skills development).

Our suggested typology have to be regularly checked and updated as the educational market is constantly changing, new and new brands appear/disappear, new technologies and standards develop.

Classification system

It was mentioned earlier: as the quality research process evolved two parameters were discovered and added to the classification: From a broader point of view two different aspects could be analysed:

- a Content oriented indicators, and

- a technical oriented set of indicators.

The originally defined indicators were expanded to new indicators, and also a separation was made. Finally, a recent similar system was found, so we propose to use that one.

CONTENT ORIENTED INDICATORS

A recent research project Paradigms offer a complete set of indicators called green light model (Nuffic, 2018) adapted from an earlier JRC report in 2016, which we can use here more broadly. Enhancing this system with the recently introduced EDCI typology enhancements, the system is based on the following seven indicators:

- Learning outcomes and achievements

- Quality of learning

- Level of learning

- Entitlement

- Activities and Workload of learning

- Assessment

- Identity of learner

- Identity of HE institution (Reputation issuer)

Those indicators can be used in the classification system by objectively analysing it and to decide whether they are covered by the respective micro-credential.

The classification can be based on a pointing system, which can be translated later to a Green-light system.

The pointing system may use the following values:

- Indicator in NOT observed/fulfilled, no info = 0 point

- Indicator can Partly be observed/fulfilled = 1 point

- Indicator can be fully/strongly observed/fulfilled = 2 point

In this system 0 point does not mean that the indicator is not met may also mean, that there is no info on it.

In this classification system the inherent value indicators may sum up 16 points that can be translated to 100% if need be.

This part of the classification system can be used separately or jointly with technical indicators.

If used separately, the green light system can be introduced to all of the indicators, but also to an aggregated value as well.

TECHNICAL INDICATORS

There are eight categories of technological indicator-classes and in most of them there are a number of specific further indicators.

The suggested system is the following:

- Distinct: Measurable, Unique, Personalised

- Secure: Unfalsifiable, Verifiable, Self-sovereign

- Modular: Stackable, transferable

- Interoperable: Open, Widely usable

- Standardisable: Reproducible, Traceable, Evidenced

- Learner Controlled: Collectible, Shareable

- Value: Affordable, Robust

- Revocable

For this system there can also be a scoring system to classify the credential technically.

The technology indicators are representing a continuum, therefore it is wise to adjust the system similarly to the content indicators, and to allow all tech. indicators to have 3 values: 0, 1, 2. This system could lead to a 36 max score classification system.

All the two systems can be converted to 100%.

This system can be used separately or jointly with content part. A joint system might need a weighting system where the natural points can have a specific weight so that we can fine tune the importance of different indicators for the whole classification system

CONTENT INDICATOR CLASSIFICATION

If used separately, we can use the green light system that was mentioned earlier:

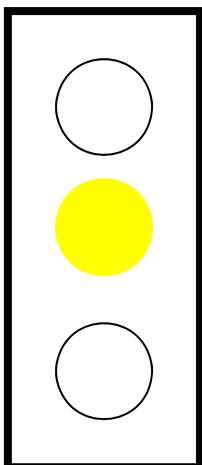This can be translated to a pointing system: 0-16 points.

There coud be a single light system as well:

0-7 RED (0-50%)

8-10 YELLOW (51- 75%)

11-16 Green (76-100%)

A label could represent this

TECHNICAL INDICATOR CLASSIFICATION

The classification could be based on pointing and a Golden-Silver-Bronze scale.

Taking the pointing system 1.), There are 18 points.
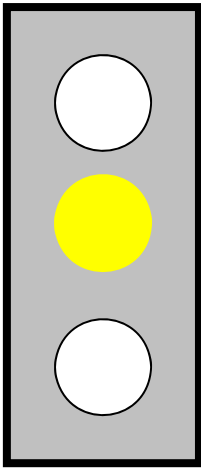
0-9 BRONZE (0-50%)

10-13 SILVER (51- 75%)

14-18 GOLD (76-100%)

COMBINED CLASSIFICATION

We can introduce also a combined classification of the greenlight and the golden medal system on the following way:

The light could show the content classification while the colour of the box could show the technical classification.

Scoring table for the system table

	Indicators	Not able to classify (n.a)	Not met (0)	Partly met (1)	Fully met (2)
	Content				
1C	Learning Outcomes and achievements	In case the evaluator did not find info about the indicator	There are no objectives or learning outcomes indicated in the certificate statement	There are at least basic learning goals, objectives or outcomes. These are measurable.	There are well designed and structured learning goals, objectives or outcomes. Learning objectives or outcomes are appropriately and systematically evaluated.
2C	Quality of learning quality assessment system	in case the evaluator did not find info about the indicator	There are no quality system references indicated on the statement, or on the portal of the issuer related to the statement.	There is at least basic local quality assessment system related to the learning activity, indicated on the statement or on the issuer portal.	There is a standardised quality system that is compliant to the national or EU level QA system, or an internationally recognised quality system indicated on the statement or on the

					issuer portal. (Example: ISO)
3C	Level of learning	in case the evaluator did not find info about the indicator	There is no indication of the level of learning at all.	The level of learning is indicated, but it is a system that cannot be identified in professional, national, EU or international classification systems.	The level of learning is indicated in compliance with in a professional, national, EU or international classification system or systems. (example ECVET, EQF)
4C	Entitlement	in case the evaluator did not find info about the indicator	There is no indication of the entitlement of learning at all.	The entitlement after learning is indicated, but it is a system that cannot be identified in professional, national, EU or international classification systems.	The entitlement after learning is indicated in compliance with in a professional, national, EU or international classification system or systems. (example ECVET, EQF)
5C	Activities and workload of learning	in case the evaluator did not find info about the indicator	Activity time or Learning time or any other unit of measurement is missing.	Activity, workload is indicated in qualitative unstandardized way, that cannot be exactly translated into credit, learning time or other units.	Activity and Workload is indicated in a quantitative and well defined way by indicating learning time or credit. Definition of

					workload can be tracked.
6C	Identity of learner	in case the evaluator did not find info about the indicator	There is no learner identification possibility on the statement.	The learner can be recognised, but cannot be exactly identified.	The learner can exactly identified by a personal unique identifier.
7C	Identity of HE institution	in case the evaluator did not find info about the indicator	There is no institutional identification, or it is not clear or misleading.	The identity of the HE institution can be recognised, but the real issuing entity within the institution cannot be identified.	The identity of the HE institution can be identified by unique identifier, and the awarding isntitution can be tracked by unique identifier.
Technical					
1M	Distinct	in case the evaluator did not find info about the indicator	The storage, display and metadata of the statement are not allowed.	The medium is partly distinct by allowing only some of the following elements: display, storage or related metadata. (example: display)	Medium is distinct. Statement display, storage and associated metadata are all allowed by the medium.
2M	Authentic	in case the evaluator did not find info about the indicator	The medium is not authentic.	The medium is partly authentic by allowing only some of the	Medium is authentic. Allows only one issuer, does not allow editing,

				following elements: allowing only one issuer, not allowing editing, storing verification information, or to display validity.	stores verification information, and displays validity.
3M	Accessible	in case the evaluator did not find info about the indicator	The medium is not accessible. E.g. The medium is not widely used (industry standard), not open	The medium is partly accessible by using open or widely used (industry standard) format.	The medium is accessible by using widely used (industry standard) and open format.
4M	Exchangeable	in case the evaluator did not find info about the indicator	The medium is not exchangeable.	The medium is partly exchangeable by allowing either relational links to other credentials or to be created out of other credentials.	The medium is exchangeable by allowing relational links between credentials and can be created out of other credentials.
5M	Portable	in case the evaluator did not find info about the indicator	The medium is not portable. It is not possessed by the earner.	The medium is partly portable. It is either physically possessed on a chosen place or easily shareable.	The medium is portable by allowing physical possession and easy sharing by the earner.