iLed
Innovating Learning Design
in Higher Education

R.3.3. Catalog of meta-data based on LD
as a basis for micro-credentials
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CONTENTS

EXECUTIVE SUMMARY

This document provides a comprehensive overview of the European framework for micro-credentials, focusing on the Council Recommendation of 16 June 2022 and its technical implementation via the **Europass Digital Credentials for Learning (EDCs)**. It outlines the definition, principles, and standard elements of micro-credentials, emphasizing their role in promoting lifelong learning, employability, and cross-border recognition.

A key focus is the alignment between the metadata requirements of Europass micro-credentials and the **Balanced Design Planning (BDP)** tool used for learning design. Through a detailed mapping exercise, the document identifies which EDC data can be automatically populated with data from the BDP tool. This includes elements such as learning outcomes, workload, delivery mode, credit points (ECTS), target group, and activity types.

The outcome of this analysis is a proposal to extend the BDP tool with functionality that enables the **automatic generation of Europass-compatible digital credentials data** in JSON format. This will allow educational institutions to efficiently create, export, and upload micro-credential data to the Europass platform for issuance, ensuring consistency with European standards and reducing administrative overhead.

The initiative supports the broader European goal of creating a transparent, interoperable, and scalable system for recognizing short learning experiences, and enhances the usability of existing tools like BDP in the credentialing process.

Introduction

Micro-credentials are emerging as a powerful tool to support flexible, personalized, and lifelong learning across Europe. Recognizing their potential, the Council of the European Union adopted the Recommendation of 16 June 2022 on a European approach to micro-credentials for lifelong learning and employability. This Recommendation calls for the development of a coherent and interoperable micro-credential system, supported by digital infrastructure such as Europass and aligned with the European Digital Credentials for Learning (EDCs) framework.

In this context, the present document provides an overview of the metadata requirements for micro-credentials and explores their alignment with the Balanced Design Planning (BDP) tool. The BDP tool, used for designing and managing learning experiences, already captures many elements relevant to micro-credential issuance. By analyzing the compatibility between BDP data and EDC data, this document identifies opportunities for streamlining credential creation and proposes a roadmap for automated generation of Europass-compatible credentials directly from the BDP tool.

Overview of Recommendation of 16 June 2022 on a European approach to micro-credentials for lifelong learning and employability

The **Council Recommendation of 16 June 2022 on a European approach to micro-credentials for lifelong learning and employability** outlines a framework to standardize and promote micro-credentials across Europe. Micro-credentials are defined as records of learning outcomes acquired through short learning experiences, assessed against transparent standards. They offer a flexible means for individuals to acquire and showcase specific skills or knowledge, complementing traditional qualifications.

Key Components of the Recommendation:

1. **Common Definition and Standard Elements:** The Recommendation provides a unified definition of micro-credentials and outlines standard elements for their description, ensuring consistency and transparency across member states.
2. **Design and Issuance Principles:** It establishes principles for designing and issuing micro-credentials, emphasizing quality assurance, transparency, relevance, valid

assessment, flexibility, recognition, portability, learner-centeredness, authenticity, and the provision of information and guidance.

3. **Integration with Europass:** The Recommendation highlights the role of the Europass platform in supporting the technical implementation of micro-credentials. Europass is encouraged to provide:

   o **Information on Learning Opportunities:** Offering details about learning opportunities leading to micro-credentials and information on providers adhering to the European approach.

   o **Authentication Support:** Facilitating the authentication of micro-credentials through European digital credentials for learning.

   o **Portability and Interoperability:** Supporting the portability, stackability, interoperability, exchange, and sharing of information on micro-credentials through a European open standard specifying a common format.

By integrating Europass into the micro-credential framework, the Recommendation aims to enhance the flexibility, transparency, and recognition of learning achievements across Europe, supporting individuals in their lifelong learning journeys and career development.

Recommendations for Member States:

The Council advises Member States to:

- **Adopt the European Approach:** Implement the common definition, standard elements, and principles for micro-credentials.
- **Promote Quality Assurance:** Ensure that micro-credentials are underpinned by agreed-upon quality assurance standards relevant to the sector or area of activity.
- **Enhance Recognition and Portability:** Facilitate the recognition and portability of micro-credentials across different contexts and borders.
- **Utilize Digital Solutions:** Leverage digital platforms like Europass for the issuance, storage, and sharing of micro-credentials to enhance accessibility and portability.

Micro-Credentials and European Digital Credentials for Learning

The article titled "Micro-Credentials and European Digital Credentials for Learning" discusses the relationship between micro-credentials and European Digital Credentials for Learning (EDCs).

Key Points from the Article:

1. **Distinction Between Micro-Credentials and Digital Credentials:**

- o *Micro-Credentials:* Defined as records of learning outcomes acquired from short learning experiences, assessed against transparent standards.
- o *Digital Credentials:* Refer to the specific format in which credentials, including micro-credentials, are issued and presented digitally.

2. **European Digital Credentials for Learning (EDCs):**
   - o EDCs provide a technical framework for issuing micro-credentials, ensuring they include standard elements as outlined in the Council Recommendation on a European Approach to Micro-Credentials.
   - o These digital credentials are designed to be authentic, tamper-evident, and easily shareable across Europe.

3. **Integration with the European Learning Model (ELM):**
   - o The standard elements of micro-credentials are incorporated into the ELM, facilitating their practical issuance in compliance with European standards.

The article emphasizes the importance of utilizing EDCs to enhance the portability and recognition of micro-credentials across Europe, supporting individuals in their lifelong learning and career development endeavors.

The **European Digital Credentials for Learning (EDCs)** provide a technical framework that enables the issuance of micro-credentials in alignment with the standard elements outlined in the **Council Recommendation on a European Approach to Micro-Credentials**. This alignment is achieved through the following mechanisms:

1. **Integration with the European Learning Model (ELM):**
   - o The ELM is a semantic standard designed to describe various learning-related data, including qualifications and learning opportunities. It incorporates the standard elements for micro-credentials as specified in the Council Recommendation, ensuring a unified structure for describing learning achievements.

2. **Standardized Data Representation:**
   - o EDCs utilize the ELM to represent micro-credentials in a consistent and structured manner. This standardization includes details such as the learner's identity, learning outcomes, awarding body, and workload, facilitating transparency and comparability across different credentials.

3. **Digital Format and Security:**
   - o By issuing micro-credentials as EDCs, they are provided in a digital format that is tamper-evident and easily shareable. This enhances the authenticity and portability of the credentials, allowing learners to securely share their achievements with employers and educational institutions across Europe.

4. **Support for Recognition and Portability:**
   - o The standardized approach facilitated by EDCs supports the recognition and portability of micro-credentials across different sectors and countries. This is

in line with the Council Recommendation's aim to promote lifelong learning and employability through transparent and reliable certification of learning outcomes.

In summary, EDCs operationalize the principles and standard elements for micro-credentials set forth in the Council Recommendation by providing a cohesive technical infrastructure. This ensures that micro-credentials are issued in a consistent, secure, and recognizable format throughout Europe.

Issuing European Digital Credentials for Learning (EDCs)

Issuing **European Digital Credentials for Learning (EDCs)** involves several key steps to ensure that educational achievements are digitally represented in a secure, standardized, and verifiable format. Here's an overview of the process:

1. **Preparation and Planning:**
   o **Understand the EDC Framework:** Familiarize yourself with the European Digital Credentials framework, which provides guidelines and standards for issuing digital credentials.
   o **Assess Institutional Readiness:** Evaluate your institution's technical infrastructure and administrative processes to ensure they can support the issuance of digital credentials.
2. **Obtain Necessary Authorizations:**
   o **Acquire an Electronic Seal (e-Seal): An e-Seal is a digital signature that verifies and authenticates the issuing institution. It is essential for ensuring the integrity, authenticity, and legal validity of the issued digital credentials.**
3. **Utilize the Europass Digital Credential Issuer:**
   o **Access the Issuer Tool:** The European Commission offers a free web application, the Europass Digital Credential Issuer, which allows institutions to create and issue EDCs.
   o **Input Credential Information:** Enter detailed information about the credential, including the learner's details, learning outcomes, assessment methods, and any other relevant data.
   o **Apply the e-Seal:** Digitally sign the credential using your institution's e-Seal to ensure its authenticity and tamper-proof nature.
4. **Issue and Distribute Credentials:**
   o **Deliver to Learners:** Once created and signed, the digital credentials can be issued to learners via email or directly deposited into their Europass wallets.
   o **Provide Access Instructions:** Ensure that recipients understand how to access, store, and share their digital credentials.
5. **Support Learners in Using EDCs:**

o **Storage in Europass Wallet:** Encourage learners to store their EDCs in their Europass wallets, a secure space within their Europass accounts where they can manage and share their credentials.

o **Sharing and Verification:** Learners can share their credentials with employers or educational institutions directly from their Europass wallets, facilitating recognition and verification.

Definitions of main credential' elements

Credentials	This tab is where you assemble and issue your credentials. Before you proceed to creating your first template, please make sure to provide details of the issuing organisation under the Organisations tab. If you wish to describe a learner's achievements, activities, or other relevant aspects, please enter these under the respective tabs. You will need to provide references to these entries when you build your credential.
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 outcome	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.
Activity	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.
Organisations	An Organisation is a legal person / registered entity that can issue the credential, conduct learning activities or assessments or that acknowledge credential holders' entitlements.
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.
HTML information	Create your custom credential diploma templates in HTML + CSS (no JS) inside the EDC's JSON structure. The template can use wildcards to choose EDC content (credential subject's name, titles, descriptions, etc.) and to show EDC non-related translatable labels ("certifies that", "has achieved", etc.) Some code samples and

	instructions on using credential wildcards are available in this downloadable document for you to customise your EDCs.
Accreditation	Your Accreditation templates will support the detailed documentation of quality assurance and licensing. Accreditation records created here can be linked to organisations (created under the Organisations tab) or qualifications (created under the Achievements tab).

From Learning Design to Digital Credentials: BDP - Europass Alignment

To support the implementation of the Council Recommendation on a European approach to micro-credentials and enable integration with the Europass infrastructure, we conducted a detailed mapping of the data required for issuing European Digital Credentials for Learning (EDCs). The aim was to identify which of these data can be connected to data already present in the learning design tool – Balanced Design Planning tool (BDP tool), and to what extent this connection can be automated.

The mapping exercise revealed a high degree of compatibility between the data structures of Europass micro-credentials and the metadata generated in the BDP tool. Many of the essential elements required by Europass, such as learning outcomes, workload, mode of learning, type of activity, credit points (ECTS), and target group, are already defined and available in BDP. This alignment provides a strong foundation for the automated generation of credential information.

In the final column of the mapping table, we indicated which EDC data can be automatically populated with data from BDP. This analysis serves as the basis for extending the BDP tool with new functionalities that will allow the export of credential data in JSON format, fully aligned with the Europass Digital Credential format. Once implemented, this feature will enable institutions to seamlessly generate and upload credential packages from their learning design process into the Europass platform for official issuance.

By bridging the learning design process with the credentialing infrastructure, we aim to simplify the administrative burden on institutions, increase consistency of credential data, and support the broader adoption of micro-credentials across Europe in a technically robust and scalable way.

Element	Options	Description	Availability in BDP tool
Credential Information			
Credential Title*			
Description		The summary of claims describing the learner's achievements. Typically should start with a verb, such as "has achieved," "is entitled to," or "has attended."	
Valid from*		The date from which the issued credential is considered valid.	
Expiration date			
Credential type*	Accredited		
	Generic		
Accreditation			
Id of linked accreditation			
Claims*		*At least one claim is required.*	
Achievements			
Activities			
Entitlements			
Assessments			
More information			
HTML information			
Title of linked template			
Identifiers			
Scheme name			
Content			
Achievement information			
Achievement title*			
Awarded by*			
Awarded date			
Description			
Learning outcomes information			
Learning outcome title			+
Summary of learning outcomes			
Further details			
Thematic area			

Languages			
Mode of learning	Workbased		+
	Project based		
	Presential	Face to face in the BDP tool	
	Online	Same as in the BDP tool	
	Blended	Same as in the BDP tool	
Type	Course		
	Programme module		
	Mentoring		
	MOOC		
	Apprenticeship		
	Study visit		
	Short learning programme		
	Internship		
	Educational programme		
	Class		
	Service learning		
	Thesis		
	Challenge		
Volume of learning			+
Maximum duration in months			
Credit system	European credit system for vocational education and training		
	ECTS		+
Number of credit points			+
Target group			
Learning setting	formal learning		
	non-formal learning		
Entry requirements			
Links to other elements			
Assessed via			
Related activities			
Rights earned			
Sub-Achievements			
Qualification			
EQF level			
NQF			
Partial qualification			

More information			
Title			
Level			
Education subject			
About the national system			
More information			
Additional fields			
Topic			
Content			
Homepage			
Other documents			
Learning outcomes			
Learning outcome title			+
Furher details			
Type	knowledge		
	skill		
Reusability level	cross-sector skills and competences		
	occupation specific skills and competences		
	sector specific skills and competences		
	transversal skills and competences		
Related ESCO Skills			
Related skills			
Framework URI			
URI			
Name			
More information			
Additional fields			
Topic			
Content			
Activity			
Activity title*			+
Directed by			
Awarded by*			
Description			
Further details			
Start date			
End date			
Volume of learning			+
Workload in hours			+

Level of completion in %			
Learning activity type			
Mode of learning			
Languages instruction			
Activity took place at			
Description			
Address			
Country			
Links to other elements			
Sub-activities			
More information			
Title			
More informaiton			
Additional fields			
Topic			
Content			
Contact hours			
Homepage			
Other documents			
Assessment information			
Assessment title*			+
Assessed by			
Awarded by*			
Description			
Further details			
Assessment date			
Assessment reliability proved by			
Assessment type			
Mode of assessment			
Language(s) of assessment			
Links to other elements			
Sub-assessments			
Grading Scheme			
Title of grading scheme			
Grading scheme identifier			
Description			
Other documents			
More information			
Title			
More information			

Additional fields			
Topic			
Content			
Homepage			
Assessment took place at			
Description			
Address			
Country			
Other documents			
Organisation information			
Legal name*			
Common name			
Homepage			
Parent organisation			
Logo			
Accreditation			
Title of linked accreditation			
Further details			
Mandatory legal identifier*			
Number*			
eIDAS ID			
Identifier			
VAT Number			
Identifier			
Tax/fiscal ID			
Identifier			
Other identifiers			
More information			
Legal address*			
Description			
Address			
Country			
Contact information			
Description			
Address			
Country			
E-mail			
Contact form			
Member of groups			
Group name			
Email			

More information Last modification date			
Entitlement information			
Entitlement title*			
Awarded by*			
Description			
Further details			
Issue date			
Expiry date			
Entitlement type			
Status			
Related ESCO occupation			
Entitlement to work as			
Entitlement valid within			
Links to other elements			
Entitlement valid with			
Sub-entitlements			
More information			
Title			
More information			
Additional fields			
Topic			
Content			
Homepage			
Other documents			
HTML information			
HTML			
Background			
Wildcard labels			
Accreditation information			
Accreditation title*			
Accrediation agent			
Description			
Furher details			
Accrediation type			
Accrediation decision			
Jurisdiction of accreditation			
Accreditation valid for thematic area			
Accreditation valid for EQF level			
Accreditation report			

Date of accreditation			
Accreditation expiration date			
Accreditation review date			
More information			
Additional fields			
Topic			
Content			
Homepage(s) of accrediation			
Related documents			

Conclusion

The alignment between the BDP tool and Europass Digital Credential requirements represents a significant step toward more efficient, standardized, and interoperable micro-credentialing processes. By mapping core credential elements - such as learning outcomes, workload, credit points, delivery mode, assessments, activities - to existing metadata within the BDP tool, we have demonstrated the feasibility of automatic data exchange and credential generation.

This integration will enable institutions to generate EDC-compliant JSON files directly from learning design activities, reducing administrative effort while ensuring consistency and compliance with European standards. Ultimately, this approach not only facilitates the technical implementation of the European micro-credential framework but also supports broader goals of transparency, recognition, and lifelong learning for all learners in Europe.

References

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