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## D3.2 Credit / Module Supplement

**MicroHE's standard documentation format for describing ECTS and/or modules, using elements from the EQF, diploma supplement, and ECTS Guide**

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# 1 Goal Setting

The MicroHE consortium has already identified that while a diploma supplement is widely used to describe degree-level qualifications, nothing similar exists for sub-degree qualifications, especially for those in the area of 5 ECTS. Therefore, the MicroHE project proposes a tool based on the diploma supplement and on credit mobility tools to fill this gap, for the purpose of facilitating micro-credential recognition and portability.

# 2 OEPass Legacy

One of the main objectives of the Erasmus+ funded Open Education Passport (OEPass)<sup>1</sup> project was to enhance transparency of quality credentials by creating a so-called Learning Passport. Learning Passports describe credentials by applying a composition formula for gained individual credits or modules, modelled on the European Diploma Supplement. It is important to highlight that when an institution issues an individual credential, the following information is recorded:

- **Awarding body**, that is the institution recognising the achievement and not necessarily the institution offering the learning experience
- **Credential**, a documented statement that acknowledges a learner's learning outcomes or achievements. The term credential can be used to refer to a qualification, that is an official completion of a course or programme of courses (e.g., any degree, diploma, or other certificate issued by a competent authority attesting to the successful completion of a higher education programme). The Learning Passport supports the detailed and transparent documentation of sub-units of such credentials, i.e., micro-, meso-, and mini-credentials. These credentials can then be accumulated into larger credentials or be included as part of a portfolio. As a result, each credential has a thoroughly documented **credential type** that can be a degree or diploma at the top level of qualifications or an ECTS or ECVET at the micro-level.
- **Holder** of the educational credential and his/her individual accomplishment. This includes data about the learner's identity and the grade achieved.
- **Evidence** of the achievement, both in terms of administration (i.e., publication date of the credential) and – optionally – outputs of the learning experience, such as published papers, essays, projects, test results, or links to public discussion fora.

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<sup>1</sup> <https://oepass.eu/>

## 2.1 Data and Software Business Credential

Tampere University's **Data and Software Business** credential is publicly shared in OEPass Learning Passport format<sup>2</sup> (Figure 1 and Figure 2).



### Data and Software Business

17/11/2020 / in Uncategorized / by ahmed.hanafy

#### Information about the awarding body

**Full name of the institution issuing the credential:**

Tampere University

**Accreditation of the institution:**

Opetus- ja kulttuuriministeriö, Suomi

Ministry of Education and Culture, Finland

Kansallinen koulutuksen arvointikeskus (Karvi)

The Finnish Higher Education Evaluation Council (FINEEC)

**Website/URL:** <https://karvi.fi/>

#### Information about the credential

**Official title of the credential:** Data and Software Business

**Description of the credential:**

5 ECTS (op)

- Consists of lectures, guest lectures, Individual exercise, course exercise + presentations in the final event
- Two main tasks:
- Individual exercise (40% of the final grade)
- Course exercise (60% of the final grade)
- Lecture recordings available through Moodle / Panopto
- Lectures online through Zoom

**Subject:** 061 – Information and Communication Technologies

**Credential type:** European Credit Transfer and Accumulation System ([ECTS](#))

**Learning outcome description:**

Basic principles of data and software business: Student understands the basic

*Figure 1. Data and Software Business Learning Passport (page 1)*

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<sup>2</sup> <https://oepass.eu/data-and-software-business/#/>

**Ways to acquire the credential:**

Validation of formal learning

**Grading Scheme:** 0 (fail) to 5 (excellent) grade scale

**Mode(s) of study:** Online, Face to Face, Full-time, Usually done as a combination of face to face and online

**Duration of learning:** 135 Hours

**Assessment method(s):** Online assessment with ID verification

**Cheating prevention by:** ID verification with secure login+password in LMS, URKUND Plagiarism Moodle plugin

**Format(s) of assessment:** Manual grading by instructor

**What is being assessed:** Learning diaries (testing reflection skills), Problem based learning (testing practical problem solving skills)

**Level of learning:** level on EQF and level 7 on NQF <https://www.oph.fi/en/education-and-qualifications/qualifications-frameworks>

**Number of Credit Points:** 5

**Accreditation of the credential:**

The course after preparation has to be approved by the programme coordinator, Faculty Board, Dean and Steering committee and assessed for course application for online studies.

**Homepage of credential:** <https://www.tuni.fi/studentsguide/curriculum/course-units/tut-cu-g-48459?year=2020&q=null>

**The credential can be a building block of:** <https://www.tuni.fi/studentsguide/curriculum/course-units/tut-cu-g-48459?year=2020&q=null>

**Information about the (test) credential holder**

- **Name:** Erik Erik
- **Date of birth:** 11-01-2000
- **Student ID:** H172568

**Credential awarded to holder on:** 09-11-2020

**Grade achieved:** 5

**Credits awarded:** 5

*Figure 2. Data and Software Business Learning Passport (page 2)*

While OEPass fulfilled its contractual obligations and successfully identified and verified an optimised range of credential properties to describe micro-credentials, the OEPass partnership learned an important lesson: no matter how well-structured the Learning Passport template or how user-friendly the online Learning Passport form was, users still reported that the effort to complete the form was time consuming with no affordance to semi-automate or to scale up the documentation process.

The limitations of OEPass were subsequently addressed by the MicroHE project. These limitations included:

- The online form utilised by OEPass (WordPress Formidable) did not allow for the reuse of existing Learning Passports to describe the learning outcomes of multiple credential holders. This could not be done in a straightforward way, for example, by only changing the data documented in the credential holder section.
- The Learning Passport template was not particularly user friendly, and it evolved from a rigid MS Word document into a more user-friendly online form. The WordPress form was designed to convert as many free-text descriptors into radio button and multiple-choice questions as possible, as well as suggested the use of standard vocabularies to describe credentials of various sizes. However, the template still had certain limitations and lacked full comprehensiveness.

Ultimately, OEPass concluded that to facilitate easy credential recognition, it was not enough to identify the credential properties that would have to be assessed by third party credential consumers. It is also essential to provide, wherever possible, standard vocabularies to describe these properties so that the value of the documented credentials can be easily determined not only by human readers, but also by machines.

## 3 The MicroHE Credit / Module Supplement

In order to recognise MOOCs and other non-traditional learning as ECTS credits toward a degree program, Higher Education Institutions (HEIs) need sufficient information about the content, quality, and quantity of a micro-credential. Furthermore, educational providers who want to make their micro-credentials easily recognisable and stackable need to know which information they should provide, and which formal requirements exist regarding assessment, identity verification, workload, etc.

MicroHE took into account the lessons learned by OEPass and drafted and published an open meta-data standard<sup>3</sup> that enabled the description of (micro-)credentials in a standardised and machine-readable format. This extended data model was based on the Qualifications metadata schema and ESCO data schema. The data model was further extended with MicroHE components and provided the technological foundation of both the

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<sup>3</sup> [https://github.com/MicroCredentials/MicroHE/blob/master/meta\\_data\\_standard\\_draft.md](https://github.com/MicroCredentials/MicroHE/blob/master/meta_data_standard_draft.md)

MicroHE Credit/Module Supplement template and, partially, the Credentials Clearinghouse, aka Credentify<sup>4</sup> (Figure 3).

The diagram illustrates the relationship between the MicroHE Credit/Module Supplement template and the Credentify standard format. On the left, a large rectangular box represents the 'MicroHE Credit/Module Supplement template'. It contains several sections: 'Module' (with fields for Module Code, Degree Program / Target Group, Semester, Status in the Curriculum, Duration Type, Module Type, Workload\_Hrs, ECTS\_Credits), 'Courses' (with fields for Type of Instruction, Language of Instruction, Contact Hours per week, Self Study\_Hrs, ECTS\_Credits), 'Table of Indications' (with columns for Exposition, Methodological Skills, Personal & Social Skills, and various skill levels), 'Learning Outcomes and Competencies' (with a detailed list of outcomes and competencies), 'Assessments' (with fields for Type of Assessment, Assessment Method, and Weighting), 'Prerequisites' (with fields for Prerequisites and Prerequisite Type), 'Type of Assessment (Assessment) and Requirements for Credits', 'Module can be used in the following Degree Programs', 'Module Overview and other Lectures included', 'Recommended Reading' (with a list of books), 'Construction of the Module to the Educational Areas of the Degree Program', and 'Date of last Modifications'. A large plus sign is positioned between the two boxes. To the right of the plus sign is a table titled 'Credentify Standard Format' with three columns: 'Descriptive', 'Structural', and 'Administrative'. The 'Descriptive' column lists fields such as Title, Alternative label, Definition, Learning outcome description, Learning outcome, Field, Is partial qualification, Is made up of, Ways to acquire, Related occupation, Awarding activity, Awarding method, Recognition, Mode of Study, Assessment\_method, and Grade\_scheme. The 'Structural' column lists Identifier, Reference language, EQF level, NQF Level, Credit / Token System, Number of Credit Points, ECTS credit points, Volume of learning, Entry requirement, Expiry period, Accreditation, Supplementary document, and Publisher. The 'Administrative' column lists Homepage, Landing page, Release/publication date, Update/modification date, Change note, History note, Additional note, Status, Replaces, Replaced by, Owner, Provenance Agent, and Publisher.

Descriptive	Structural	Administrative
Title	Identifier	Homepage
Alternative label	Reference language	Landing page
Definition	EQF level	Release/publication date
Learning outcome description	NQF Level	Update/modification date
Learning outcome	Credit / Token System	Change note
Field	Number of Credit Points	History note
Is partial qualification	ECTS credit points	Additional note
Is made up of	Volume of learning	Status
Ways to acquire	Entry requirement	Replaces
Related occupation	Expiry period	Replaced by
Awarding activity	Accreditation	Owner
Awarding method	Supplementary document	Provenance Agent
Recognition		Publisher
Mode of Study		
Assessment_method		
Grade_scheme		

Figure 3. Credit/Module Supplement with a standard format for describing ECTS and/or modules

### 3.1 Data and Software Business Credential

Tampere University recorded its **Data and Software Business** course and learning achievement data in Credentify and issued a test credential to a fictional person in order to demonstrate the look, feel, and functioning of the credential in this new technical environment (Figure 4). The user feedback from the Tampere University representative, who recorded the credential data both in Credentify and on the OEPass website was described as follows:

*Credentify is very user friendly when it comes to recording and categorizing course related information. Due to the 'tag' feature it provides wherein you can add skill and competence tags to each course, it offers an efficient method of building up on 21C skills that are in huge demand at the moment and will continue to be in the near future. The fact that it builds up on the existing ESCO standard adds another layer of authenticity to its usage. Speaking of the technical underbelly that it has been built over, non fungible tokens are one of the best available methods to be used for storing and verifying credentials using blockchain technology and the usage of open standards makes future development and adoption rather easy. Naturally, the questions of large scale adoption and scalability arise, but they will be sorted out in due time as more pilots are underway.*

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<sup>4</sup> <https://credentify.eu/>

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The screenshot shows a user interface for managing credentials. On the left is a sidebar with icons for Achievements, Credentials, Users, and Institutions. The main area is titled 'Achievement details' for a credential named 'Data and Software business'. The achievement details section includes a date issued (2020-09-15), institution (Tampere University), publisher (5ea9252b031f4b00083c2a8d), and a 'REQUESTED' status button. Below this are several rows of tags: BASIC PRINCIPLES OF DATA AND SOFTWARE BUSINESS, IDENTIFY OPPORTUNITIES, EVALUATE INFORMATION, BUSINESS KNOWLEDGE, PROPOSE ICT SOLUTIONS TO BUSINESS PROBLEMS, MONETIZING WITH DATA AND SOFTWARE, THINK CREATIVELY, COLLABORATIVELY DEVELOP A DATA OR SOFTWARE CONCEPT, WORK IN TEAMS, INTERACT WITH OTHERS, PERFORM BUSINESS ANALYSIS, and BUSINESS MANAGEMENT PRINCIPLES. A 'Update achievement' button is located below this section. The 'ADDITIONAL INFORMATION' section contains a table with the following rows:

Definition	Masters level course run by information and knowledge management unit of Tampere University. The course gives an overview of data and software business. The learners work individually and together on developing a minimum viable product (MVP) for a new software start-up.
Learning outcome description	Basic principles of data and software business: Student understands the basic principles of data and software business, and the special characteristics of software industry Identify opportunities. Look
Awarding activity	Manual grading by instructor
Awarding method	Learning diaries (testing reflection skills), Problem based learning (testing practical problem solving skills)
Grade scheme	0 (fail) to 5 (excellent) grade scale
Mode of study	Online, Face to Face, Full-time, Usually done as a combination of face to face and online
Assesment method	Online assessment with ID verification
Accreditation	The course after preparation has to be approved by the programme coordinator, Faculty Board, Dean and Steering committee and assessed for course application for online studies.
Home page	<a href="https://www.tuni.fi/studentsguide/curriculum/course-units/tut-cu-g-48459?year=2020&amp;q=null">https://www.tuni.fi/studentsguide/curriculum/course-units/tut-cu-g-48459?year=2020&amp;q=null</a>

*Figure 4. Tampere University credential record*

At the moment, Credentify does not support exporting credentials as pdfs – a standalone document that we could call the MicroHE Credit Supplement. Instead, it uses a scalable, technical alternative system of issuing and verifying tens of thousands of credentials in the clearinghouse, by this being able to encode, decode, show, and share a credential.

Although it does not support the download of credentials in pdf format, Credentify supports a digital ecosystem that enables technical interoperability between machines and systems. By following the steps of the below illustrated use case, users can generate their credentials in an interoperable and portable way.

### **3.1.1 Use Case Flow in Credentify**

As a first step, our sample credential holder, Gina Lollobrigida, requests and receives approval for a digital credential called “Data and Software Business” offered by Tampere University (Figure 5).

The screenshot shows the Credentify platform interface. On the left, there is a vertical sidebar with the Credentify logo at the top, followed by navigation links: Achievements, Credentials (which is selected and highlighted in blue), Users, and Institutions. Below these, it says "Powered by" and the Xcert framework logo.

The main content area has a header "Credential details" with a back arrow icon. It displays participant details for "Gina Lollobrigida" (humaneai@videolectures.net) who joined on "Member since: 2020-05-10". There is a "SHOW BLOCKCHAIN" button. A circular profile picture of Gina Lollobrigida is shown.

The "CREDENTIAL FOR ACHIEVEMENT" section lists "Data and Software business" as the achievement, awarded by "Tampere University". The "TYPE" column contains three items: "2. MONETIZING WITH AND SOFTWARE", "1. BASIC PRINCIPLES OF DATA AND SOFTWARE BUSINESS", and "3. COLLABORATIVELY DEVELOP A DATA OR SOFTWARE CONCEPT".

The "CREDENTIAL RESULTS" section provides the following information:

Grade	9
Credits awarded	1
Expiry period	2021-05-28T00:00:00.000Z
Cheating	N/A

The "CREDENTIAL METADATA" section lists various metadata fields with their values:

Field	Value
identifier	5f608a78d4e4aa00073d5891
name	Data and Software business
title	Data and Software business
description	Masters level course run by information and knowledge management unit of Tampere University. An overview of data and software business. The learners work individually and together on developing a viable product (MVP) for a new software start-up.
definition	Masters level course run by information and knowledge management unit of Tampere University. An overview of data and software business. The learners work individually and together on developing a viable product (MVP) for a new software start-up.
creditSystem	ECTS
ECTSCreditPoints	5
awardingBody	5e8c6dc511ff84d6cd62cdda
dateIssued	Thu Oct 29 2020 10:27:53 GMT+0000 (Coordinated Universal Time)
dateModified	Thu Oct 29 2020 10:27:53 GMT+0000 (Coordinated Universal Time)
publisher	5ea92528e31f4b00083c2a8d
holder	Gina Lollobrigida
studentId	5eb85acc96b7510008720656
uniqueId	5f9a9929fc49e800081ede52
credential	Data and Software business

A "VERIFY CREDENTIAL" button is located at the bottom of the metadata section.

Figure 5. Details of Gina Lollobrigida's digital credential **Data and Software Business** as displayed in Credentify

Gina then checks the encoded file on the blockchain (Figure 6).

The screenshot shows the Etherscan interface for the Rinkeby Testnet Network. The transaction details page displays the following information:

- Transaction Hash:** 0xe90b4a8f1aae42fea605066e5f9fc7c5e0fd48ef9b75ea9c96e2af9facf2327
- Status:** Success
- Block:** 7453968 (185167 Block Confirmations)
- Timestamp:** 32 days 5 hrs ago (Oct-29-2020 10:30:09 AM +UTC)
- From:** 0xb29150ac12f77486f890d9318c67350ccb0f117
- Interacted With (To):** Contract 0x8254f1b119cd263b066912b3cb4fe568f580b6c
- Tokens Transferred:** From 0x29789403a79459... To 0xf9196f9f176fd2ef9... For 47.619047619047619047 Dapp token (DXC)
- Tokens Transferred:** From 0x0000000000000000... To 0x4179d8a586b7b1... For ERC-721 TokenID [29587973805816136957259865682] Credentity (CRF)
- Value:** 0 Ether (\$0.00)
- Transaction Fee:** 0.0002795287 Ether (\$0.000000)
- Gas Price:** 0.0000000011 Ether (1.1 Gwei)

At the bottom, there is a link to "Click to see More".

Figure 6. Transaction details from the Blockchain of Gina's credential

After the credential becomes a unique digital asset, Gina can verify it by pressing the “Verify Credential” at the bottom of the page and then again in the “Verify my credential” popup window (Figure 7).

The screenshot shows the Credentity interface. On the left, there is a sidebar with icons for Achievements, Credentials, Users, and Institutions. At the bottom, there is a "VERIFY" button.

The main area is titled "Verify your credential" and contains the following fields:

- Asset ID:** 29587973805816136957259865682
- Ledger ID:** 0x6D984eD0a0675199C5146220BBeE274b52EC0b13
- Asset schema:** {"\$schema": "http://json-schema.org/draft-07/schema", "title": "Micro...
- Asset evidence:** {"\$schema": "https://conventions.Oxcert.org/87-asset-evidence.json", ...}
- Asset metadata:** {"identifier": "5f608a78d4e4aa00073d5891", "name": "Data and Software ...}
- Network:** Ethereum - Rinkeby

At the bottom right, there is a "VERIFY CREDENTIAL" button.

Figure 7. Credential verification buttons

This verification mechanism is technically also designed to be used by other third parties in the clearinghouse, such as universities and/or recruiting agencies, as it generates a presentation of the asset (Figure 8).

The screenshot shows the Oxcert Verifier web application. At the top, there is a logo for 'Oxcert VERIFIER' and a link to 'Powered by Oxcert Framework'. Below the header, there are two buttons: 'VERIFY' (which is underlined) and 'EMBED'. The main content area displays the message 'The asset is valid.' followed by a detailed table of asset properties and their status.

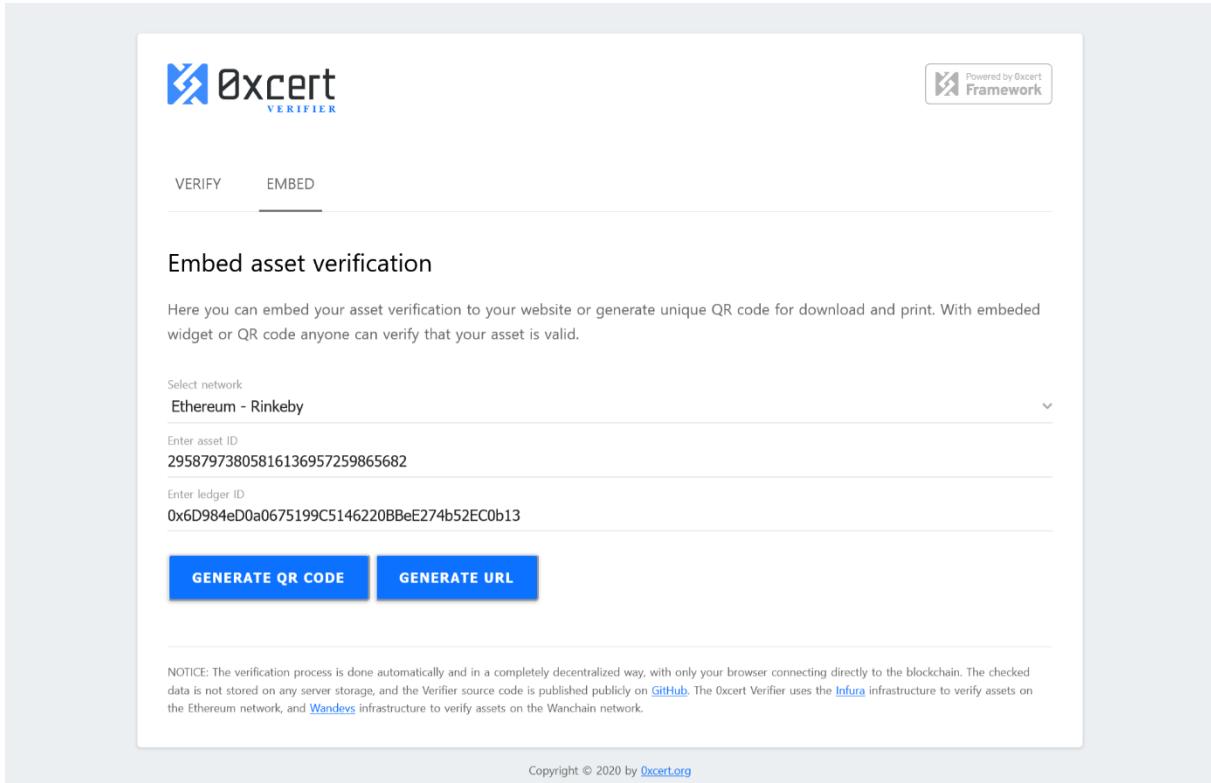
Key	Value	Status
<b>Identifier of a qualification</b>	5f608a78d4e4aa00073d5891	✓
<b>A property that holds a name of an asset</b>	Data and Software business	✓
<b>Official title of the qualification</b>	Data and Software business	✓
<b>A property that holds a detailed description of an asset</b>	Masters level course run by information and knowledge management unit of Tampere University. The course gives an overview of data and software business. The learners work individually and together on developing a minimum viable product (MVP) for a new software start-up.	✓
<b>Short description of the qualification</b>	Masters level course run by information and knowledge management unit of Tampere University. The course gives an overview of data and software business. The learners work individually and together on developing a minimum viable product (MVP) for a new software start-up.	✓
<b>Name of the Credit system in use (e.g. ECTS)</b>	ECTS	✓
<b>Number of credit points assigned to the qualification following ECTS system</b>	5	✓
<b>Awarding body</b>	5e8c6dc511ff84d6cd62cdda	✓
<b>The date when the qualification was published and the metadata about the qualification was made available</b>	Thu Oct 29 2020 10:27:53 GMT+0000 (Coordinated Universal Time)	✓
<b>Agent responsible for making the information about the qualification available</b>	5ea92528e31f4b00083c2a8d	✓
<b>Automatically generated for each credential</b>	5f9a9929fc49e800081ede52	✓
<b>The credential which is being awarded to the student</b>	Data and Software business	✓

At the bottom of the table is a blue button labeled 'VERIFY ANOTHER ASSET'. Below the table, a notice states: 'NOTICE: The verification process is done automatically and in a completely decentralized way, with only your browser connecting directly to the blockchain. The checked data is not stored on any server storage, and the Verifier source code is published publicly on [GitHub](#). The Oxcert Verifier uses the [Infura](#) infrastructure to verify assets on the Ethereum network, and [Wandevs](#) infrastructure to verify assets on the Wanchain network.'

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Figure 8. Verification screen of Gina's credential

When Gina accesses her digital credential's verification details (Figure 8), she can click on the “EMBED” tab at the top of the page (Figure 9) and requests to generate a “QR code” (Figure 10) or a “URL” (Figure 11), both of which can be shared via social media or any type of digital communication channel and which points back to the verifiable digital credential in Credentify.



*Figure 9. Content of the “EMBED” tab on the credential verification page*

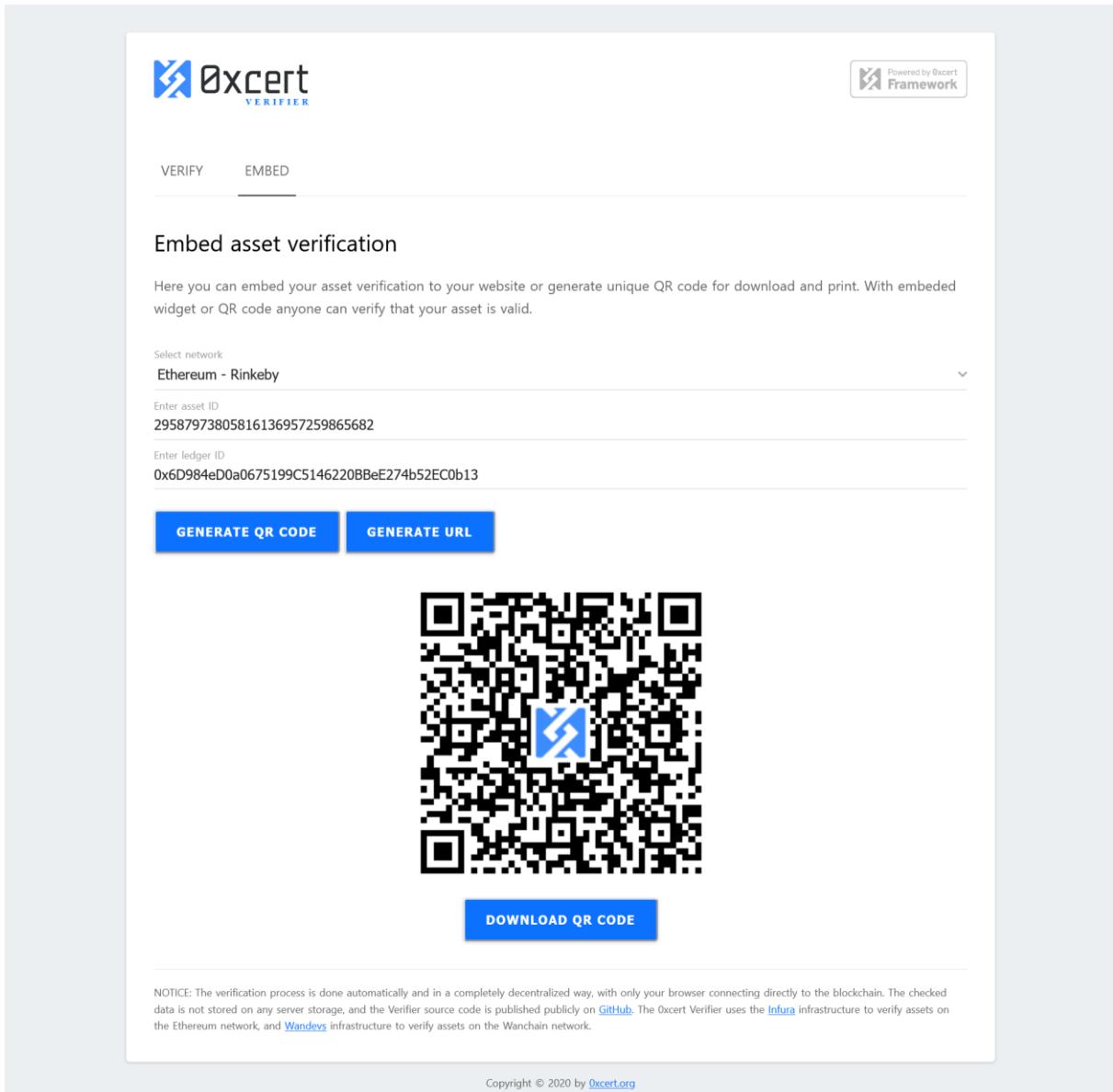
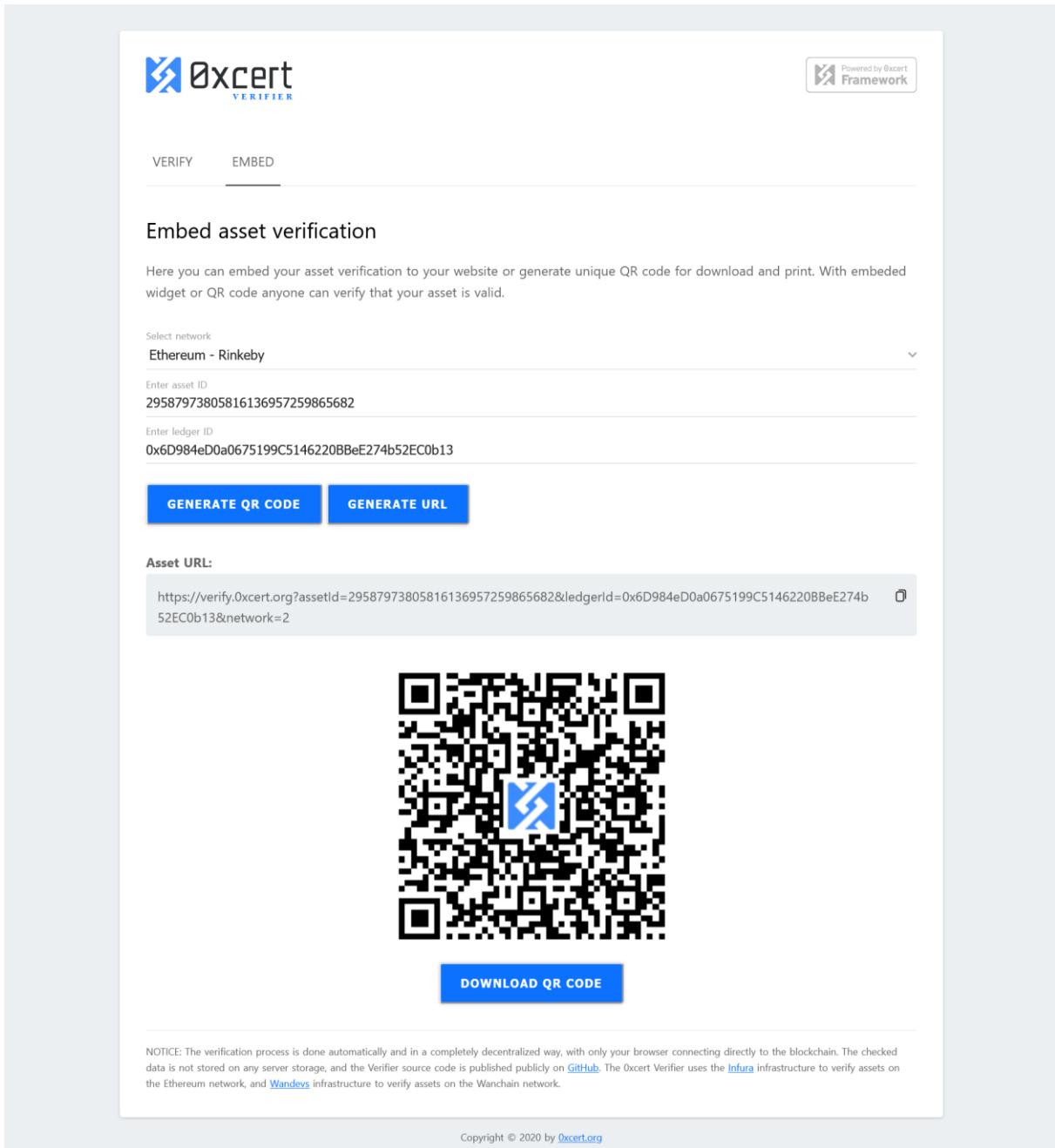


Figure 10. Shareable QR code of Gina's credential



*Figure 11. Shareable URL and QR code of Gina's credential*

Credentify users that have participated in the public testing have also published their QR code and the embed code on their LinkedIn profiles (Figure 12).

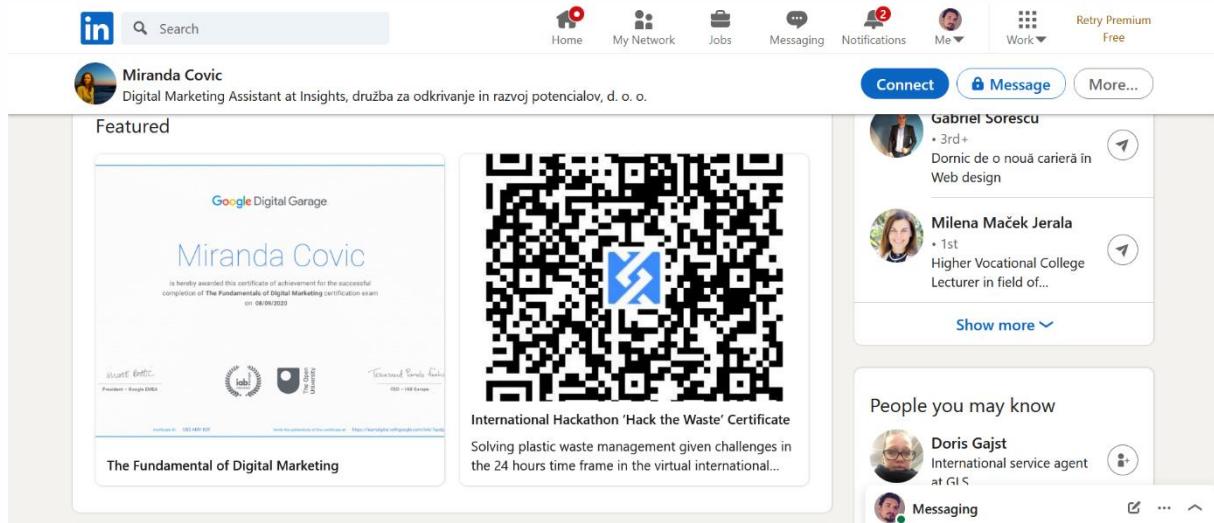


Figure 12. Credentify credential shared on LinkedIn

NB, the QR code, and the embed code could also display the logos of their issuing organisations, as well as other marketing items and data, if required.

## 4 Europass Digital Credentials

The successful dissemination, consultancy, and advocacy of the MicroHE meta-data standard eventually resulted in further extensions and finetuning of the data model. This led to the development and publication of the Europass Learning Model<sup>5</sup> that supports the standardised description of learning opportunities, qualifications, and other formal and non-formal credentials. This single European data model, and the new Europass portal<sup>6</sup> that built its learning opportunities database and digital credentials infrastructure<sup>7</sup> upon it, has allowed the development of tools and services that support a growing number<sup>8</sup> of European citizens to effectively plan and steer their lifelong learning pathways.

<sup>5</sup> [https://github.com/european-commission-europass/Europass-Learning-Model/blob/master/Europass\\_Learning\\_Model.md](https://github.com/european-commission-europass/Europass-Learning-Model/blob/master/Europass_Learning_Model.md)

<sup>6</sup> <https://europa.eu/europass/>

<sup>7</sup> <https://europa.eu/europass/digital-credentials/issuer/>

<sup>8</sup> In November 2020, less than 5 months after the official launch of the new Europass portal, the number of registered accounts was 1.3 million.

## 4.1 Data and Software Business Credential

Tampere University recorded its **Data and Software Business** course and learning achievement data using the Europass Learning Model and issued a test credential<sup>9</sup> that, compared to the OEPass Learning Passport and Credentify versions of the same credential, demonstrates both the OEPass and MicroHE legacies and the subsequent evolution of the documentation principles, mechanisms, and sophistication (Figure 13).

The screenshot shows a digital credential page from the Europass website. At the top, there's a header with the Europass logo, the European Union flag, and language options (English EN). Below the header, a blue navigation bar includes links for 'europass', 'Learn in Europe', 'Work in Europe', 'About Europass', and 'Contact us'. A message at the top states: 'This credential link will expire: 19/11/2021 00:00 GMT +0100'. The main content area features a 'Certificate of Completion' section with a thumbnail image of a certificate, the date 'Valid From: 10/09/2020 00:00 GMT +0200', and the type 'Generic'. To the right is the Tampere University logo. Below this, there are several sections: 'Issuing Organisation' (Data and software business), 'Credential Owner' (Individual assignment), 'Achievements' (Group assignment), 'Activities' (empty), 'Proven by' (table showing Overall grade 3), 'Influenced by' (Individual exercise, Course exercise, Zoom lectures), 'Sub-Achievements' (Individual assignment, Group assignment), 'Specification %' (Course code identifier: TLO-35247, Learning Outcomes: Basic principles of data and software business), and 'Identify opportunities' (dropdown menu). At the bottom of the page, there are buttons for 'Credential Preview', 'Export', 'Upload another credential', 'Share', and language selection.

Figure 13. Screenshot illustration of the structure and data content of a Europass Digital Credential

<sup>9</sup> <https://europa.eu/europass/digital-credentials/viewer/#/shareview/E9XS02RJRGDzE1vg>



The main objective of MicroHE was to provide a comprehensive policy analysis of the impact of modularisation, unbundling, and micro-credentialing in European Higher Education (EHE). To achieve its goals, the project conducted the following activities:

- Gathering the state of the art in micro-credentialing in EHE today, by organising the first European survey on micro-credentials in HE and surveying institutions across the continent, with the aim of understanding the current level of provision, the types of micro-credentials offered, and future trends in provision of micro-credentials
- Forecasting the impact of continued modularisation of Higher Education on EHE Institutions by using forward-scanning techniques, specifically through the use of DELPHI methodology
- Examining the adequacy of European recognition instruments for micro-credentials, in particular ECTS, the diploma supplement, and qualification frameworks
- Proposing a 'credit supplement' to give detailed information about micro-credentials that is compatible with ECTS, the diploma supplement, and qualification frameworks
- Developing a meta-data standard and an online clearinghouse to facilitate recognition, transfer, and portability of micro-credentials in Europe



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