



MicroHE Impact Audit

Putting Micro-Credentials on the
Policy Agenda in Higher Education
in Europe

May 2021



Authors

Jochen Ehrenreich, Anthony Camilleri, Raimund Hudak, Ildiko Mazar

Contributors

Matteo Uggeri, Stefano Menon, Laura Barlassina, András Szücs, Ferenc Tatrai, Mihajela Crnko, Davor Orlic, Elena Trepulè, Vida Žvinienė, Airina Volungeviciene, Henri Pirkkalainen, Ira Sood, Christine Fenech

Editors

Günter Käßer-Pawelka

Layout

Tara Drev

Copyright

(C) May 2021, MicroHE Consortium

The MicroHe Consortium

Duale Hochschule Baden-Württemberg Heilbronn	DHBW	DE
European Distance and e-Learning Network	EDEN	UK
Fondazione Politecnico di Milano	FPM	IT
Jozef Stefan Institute	JSI	SI
Knowledge for All Foundation	K4A	UK
Knowledge Innovation Centre	KIC	MT
Vytautas Magnus University	VMU	LT
Tampere University of Technology	TUT	FI

This project has been funded with support from the European Commission. This publication reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Project Number: 590161-EPP-1-2017-1-DE-EPPKA3-PI-FORWARD

Agreement/decision Number: 2017 - 3065

This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International



Co-funded by the
Erasmus+ Programme
of the European Union



Table of Contents

1	Executive Summary	5
2	Methodology and Target Groups	7
2.1	Methodology	7
2.2	Target Groups	7
3	Impact on European Policy	8
3.1	European policy developments in the area of micro-credentials	8
3.1.1	European Commission Microcredentials Consultation Group	8
3.1.2	European Approach to micro-credentials	8
3.1.3	MicroBol: Applying the Bologna tools to micro-credentials	9
3.1.4	European Universities Alliances	9
3.1.5	Other Erasmus+ projects related to micro-credentials	9
3.2	European policy developments in the area of digital credentials	10
3.2.1	Europass Digital Credential Infrastructure EDCI	10
3.2.2	W3C global standard for verifiable credentials	10
3.2.3	Commission workplan for 2021 - single 'trusted and secure' form of online identification	10
3.2.4	Action 3 of the Digital Education Plan	11
3.2.5	ET2020 Working Group on Digital Education: Learning, Teaching and Assessment (DELTA)	11
3.2.6	International Council on Badges and Credentials (IcoBC)	11
4	Impact on Project Partners	12
4.1	Awareness and institutional strategy development	12
4.2	Credentify.eu: technology demonstrator for a blockchain-based credentials clearinghouse	12
4.3	Follow-up Projects	13
4.3.1	ECIU University	13
4.3.2	ECCOE	14
4.3.3	EdDiCo	14
4.3.4	MicroCredX	15
4.3.5	Digi-Prof	15
5	Impact on Participants	16
5.1	Surveys and Interviews	16
5.2	Delphi Study	16

5.3	Digital Credentials Masterclass	16
5.4	European Expert Workshop	17
5.5	National Workshops	17
5.6	MicroHE Final Conference	17
6	Impact on the Community.....	18
7	Conferences and Events	19
7.1	MicroHE Conferences	19
7.1.1	Digital Credentials Masterclass	19
7.1.2	MicroHE Final Conference	19
7.2	Conference Contributions.....	19
7.2.1	International Conferences and Events.....	20
7.2.2	International Webinars	21
7.2.3	Conferences and Events in Finland.....	22
7.2.4	Conferences and Events in Germany.....	22
7.2.5	Conferences and Events in Italy.....	23
7.2.6	Conferences and Events in Lithuania	23
7.2.7	Conferences and Events in Slovenia.....	23
7.2.8	Conferences and Events in Spain	24
7.3	Bilateral consultation with people outside the partnership	24
7.4	Slideshare	24
8	Publications.....	25
8.1	MicroHE Reports and Public Deliverables	25
8.2	GitHub.....	26
8.2.1	MicroHE Meta-Data-Standard	26
8.2.2	Credentify.eu.....	26
8.3	Academic papers	26
9	Citations of MicroHE.....	27

1 Executive Summary

The MicroHE project helped to elevate micro-credentials and digital credentials from a niche topic to a major EU policy area. Equally, it has truly transformed the institutions represented in the partnership, and inspired new projects and initiatives, such as the ECIU European University.

We identified a need for a harmonized European approach to digital credentialing and to micro-credentials. This led to the active involvement of MicroHE partners such as KIC, DHBW, TAU and EDEN in

- the development and piloting of the EUROPASS digital credentials infrastructure EDCI
- DG EAC's Micro-credentials Consultation Group
- the Bologna Process via the MicroBol project.

One of the main objectives of MicroHE was to put micro-credentials on the agenda of policy makers and Higher Education Institutions both on regional/national and European level. With its research, in-depth surveys, expert consultations and extensive networking activities (with other relevant and impactful EU projects, such as OEPass, e-SLP, OpenVM, eLene4Life, the European MOOC Consortium, ECCOE and MicroBol, to name a few), MicroHE contributed significantly to consolidating the terminology around short learning programmes and micro-credentialing, that is being adopted by a wide range of educational stakeholders across the EU and beyond. Together with our partner projects we started disaggregating Digital Credentials vs Open Badges vs Short Learning Programmes vs Micro-Credentials. This initiative helped to create a clearer picture where these novel concepts can be sufficiently distinguished and described. The dialogue that MicroHE triggered between high level experts and practitioners continues and expands. We expect that by explaining and demonstrating the difference between non-formal open badges and thoroughly and transparently documented learning in the form of verifiable micro-credentials, we dissolved some scepticism and started lifting an obstacle standing in the way of mainstreamed effective (micro-)credential recognition.

Since the time the project application was submitted early in 2017, MicroHE has been advocating that micro-credentials have the potential to open up education to more people, and that a larger uptake of micro-credentials could foster innovation in education and employment practices. As mentioned above, our project has helped significantly to shift the public perception of micro-credentialing in Higher Education Institutions (HEI) from being a niche experiment of a few pioneering institutions to having a positively transformative effect on a more massive scale. This is proven by high level EU initiatives, like Europass – that has adopted the MicroHE metadata standard – and the new European approach to micro-credentials – Action 10 in the new European Skills Agenda – that incorporates knowledge and recommendations coming from expert consultants representing the MicroHE project at three virtual meetings of the European micro-credentials consultation group between 26 May and 17 September 2020, ultimately proposing a common European definition, common characteristics

and a roadmap of actions. The Final report: A European approach to micro-credentials – output of the micro-credentials higher education consultation group, has a list of elements in its proposed EU Standard of constitutive elements of micro-credentials that is mirroring the composition of the MicroHE Credit-Supplement.

Through our extensive networking activities, each of our results has gained significant traction:

1. The **survey on the state of micro-credentials**, the **definition of micro-credentials** and the **micro-credentials user's guide** have been incorporated in the EU Approach to Micro-Credentials after dissemination via numerous conferences, seminars and workshops around Europe, in particular, promotion at our Digital Credentials Masterclass, and participation in the expert group for micro-credentials.
2. The **MicroHE meta-data standard** was incorporated into the Europass Learning Model (and therefore has been retired and replaced by the the Europass Learning Model), which powers the Europass Learning Opportunities search and Digital Credentials Infrastructure. By 1 December 2020, the number of Europass accounts, which allow the storage of digital micro-credentials based on our format, was 1.3 million and is increasing by 10,000 per day. Engagement with Europass occurred via the EU consultation for Europass, and later via direct consultancy to DG EMPL on data models for micro-credentials.
3. The creators of the **MicroHE credentials clearinghouse (which is now called credentify.eu)** also exceeded their initial goal, and instead of developing a mere proof of concept, Credentify is a functional open-source framework that allows the issuing of blockchain-based digital credentials as non-fungible tokens (NFTs) and provides a practical mechanism for combining credentials from several sources into a larger credential or a degree. The credentify platform has its own exploitation strategy, and is being proposed as a credentialing solution to university networks and governments – with particular potential for uptake in Slovenia and at the ECIU European University Alliance. Code for credentify was published on GitHub – a social network for developers, and is being reused in credentialing projects around the world.
4. The **MicroHE DELPHI study** used forecasting methodologies to determine the impact of various micro-credentialing policies on universities. We plan to integrate this forecasting work with another forecasting exercise on open credentialing conducted by the OEPASS project, to produce a seminal publication on micro-credentialing strategies, to be published as a Springer Brief in mid 2021.

2 Methodology and Target Groups

2.1 Methodology

This document is based on four main sources:

1. qualitative reporting of the impact on policy, project partners, participants and the community,
2. Self-reporting by the partners on the activities conducted by each of them in line with the dissemination strategy,
3. citation metrics,
4. metrics collected from automated web-tools to measure web impact.

2.2 Target Groups

Our primary target group included: HE institutions, HE management staff, HE academic staff, students, employers, decision makers in education and training and other related projects such as e-SLP, EMC, e-value and OEPass, with technology firms and policy actors.

Our secondary target group included: policy actors dealing with micro-credentials, recognition issues or accreditation issues (such as national/EU decision makers and Bologna experts); researchers in education policy, stakeholder organisations, and authors of best practices in micro-credentials.

Other expertise we targeted included: technology experts, edtech and blockchain developers, instructional designers, online course developers, experts in personal learning accounts, experts in skills assessment, and researchers in education, employability, quality assessment and accreditation.

Representatives of all three target groups were involved in the project activities, especially in the survey on micro-credentials, interviews, the DELPHI study, the public consultations on the meta-data standard and on the credentials clearinghouse, the digital credentials masterclass, the MicroHE final conference, as well as in peer review activities, conference workshops and presentations.

3 Impact on European Policy

MicroHE aimed at “achieving the aims of the renewed EU strategy for higher education”, and more specifically to “field-test innovative solutions to challenges in the education and training fields” and “generate a sustainable and systemic impact on education and training systems”.

The project addressed the intersection of digital credentialing, recognition policies for micro-credentials and institutional business strategies for micro-credentials. The relevance of these issues is demonstrated by the number of policy initiatives which MicroHE has informed during its lifetime.

3.1 European policy developments in the area of micro-credentials

3.1.1 European Commission Microcredentials Consultation Group

On 11 May 2020 the European Commission organised a Coordination Webinar for Erasmus+ funded projects working on the topic of micro-credentials, that 26 influential field experts participated. Through our active participation at this (the MicroHE presentation has been viewed 735 times since then) and three virtual meetings of the European micro-credentials consultation group between 26 May and 17 September 2020, MicroHE had gained not only high visibility within the micro-credentials circle, but also secured a strategic position from which we could influence the drafting of the official common European terminology, and a roadmap of actions.

3.1.2 European Approach to micro-credentials

The European approach to micro-credentials¹, informed and influenced by an expert consultation group that included individual members of the MicroHE consortium, echoes and reiterates the calls for action advocated by our project, and will lead to a Council Recommendation in early 2022.

¹ https://ec.europa.eu/education/education-in-the-eu/european-education-area/a-european-approach-to-micro-credentials_en

3.1.3 MicroBol: Applying the Bologna tools to micro-credentials

The MicroBol project is engaging ministries and stakeholders involved in the Bologna Follow-up Group to explore whether and how the existing EHEA tools can be used and/or need to be adapted to be applicable to micro-credentials.²

The MicroHE consortium is sharing the URL <https://microcredentials.eu/> with the MicroBol project. That way the project website that MicroHE has established will be sustained in the future and will be updated with additional content from the MicroBol project.

3.1.4 European Universities Alliances

Several European Universities are being built with concepts of micro-credentials developed in MicroHE at their centre. They are taking a micro-credentials approach to increase student mobility between the members of the alliance. The MicroHE project has received (and answered) requests from several European Universities Alliances to provide advice on implementing a micro-credentials strategy and on using digital credentials.

In particular the ECIU, SEA-EU and ARQUS universities use some of our micro-credentialing concepts, while other universities and centres for vocational excellence are in formation around the concept. Two of the four university partners in the MicroHE consortium are already engaged in a European Universities Alliance: Tampere University is a member of ECIU university. Vytautas Magnus University is a member of Transform4Europe. DHBW has plans for the next call to be part of a European University Alliance proposal, with a focus on creating a pool of micro-credentials to be used in a planned alliance of universities with a work-based / dual-study approach.

3.1.5 Other Erasmus+ projects related to micro-credentials

A growing number of Erasmus+ projects, e.g. OEPass, e-SLP, e-evaluate, OpenVM, eLene4Life, the European MOOC Consortium, ECCOE and MicroBol, that MicroHE was liaising with to share findings, tap into relevant parallel research, learn from each other and harmonise efforts with a view of achieving shared objectives and strengthening trust in and acceptance of micro-credentials' use in higher education.

² <https://microcredentials.eu/about-2/microbol/#objective>

3.2 European policy developments in the area of digital credentials

3.2.1 Europass Digital Credential Infrastructure EDCI

The European Skills Agenda³ and the Communication on Achieving the European Education Area by 2025⁴, highlight the need for a unified digital credentialing standard in Europe, and the role of the new Europass platform readily supports the issuing, storage and sharing of digitally-signed credentials. The Europass Learning Model⁵, that facilitates the standardised description of learning opportunities, qualifications and micro-credentials awarded by formal and non-formal learning providers, was built on the foundations presented by the MicroHE meta-data standard⁶. By its metadata standard, MicroHE has developed crucial components of a universally applicable complex standard data model (i.e. the Europass Learning Model, already in the service of 1.3 million registered users on 1 December 2020) that allows data-rich description of learning outcomes irrespective of their source. Credential properties may include familiar standards such as qualification framework level references, the expression of workload in hours and/or ECTS, the specification of subject areas using ISCED-f codes, the description of learning outcomes in terms of ESCO knowledge, skills and competences, etc.

3.2.2 W3C global standard for verifiable credentials

The W3C has launched a global standard for verifiable credentials⁷, while a group of 12 international universities including MIT and the Open University have formed a consortium to propose a digital credential infrastructure for the future⁸, which also use concepts from the MicroHE data model as core input documents.

3.2.3 Commission workplan for 2021 - single ‘trusted and secure’ form of online identification

The Commission workplan for 2021 includes the creation of a single ‘trusted and secure’ form of online identification, which will include the creation of blockchain-based identity documents

³ <https://ec.europa.eu/social/main.jsp?catId=1223&langId=en>

⁴ https://ec.europa.eu/commission/presscorner/api/files/document/print/en/ip_20_1743/IP_20_1743_EN.pdf

⁵ <https://github.com/european-commission-europass/Europass-Learning-Model>

⁶ https://github.com/MicroCredentials/MicroHE/blob/master/meta_data_standard_draft.md

⁷ <https://www.w3.org/TR/vc-data-model/>

⁸ <https://digitalcredentials.mit.edu/wp-content/uploads/2020/02/white-paper-building-digital-credential-infrastructure-future.pdf>

and digital credentials. Lessons learned from the creation of the credentify.eu platform, as one of the first technologies to try implementing this, will be extremely valuable to the initiative.

3.2.4 Action 3 of the Digital Education Plan

At the start of the project, we identified the consultation around Action 3 of the Digital Education Plan, namely to “*provide a framework for issuing digitally-certified qualifications*” as a key avenue to reach the necessary policymakers and stakeholders to achieve our policy goals. Through our participation in that consultation, we were able to bring our ideas around micro- and digital- credentials to the right audience and participate in many subsequent consultations on the European approach to micro-credentials and the technological development of the Europass Digital Credentials Infrastructure, as mentioned above.

3.2.5 ET2020 Working Group on Digital Education: Learning, Teaching and Assessment (DELTA)

MicroHE was already represented in topically relevant European consultations by EDEN and VMU being a member of the ET2020 Working Group on Digital Education: Learning, Teaching and Assessment (DELTA)⁹.

3.2.6 International Council on Badges and Credentials (IcoBC)

MicroHE has also inspired the formation of ICoBC , an association on badges and credentials. Its goal is “to develop and facilitate best practices on badges and credentials regionally and globally. Our community is collaborating on the following areas:

- Designing Badges & Credentials (Curriculum, Testing, Verification)
- Deploying Badges & Credentials (Internal Marketing, Practices)
- Taxonomies and matching with official certification schemes”¹⁰

⁹

<https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=3407&NewSearch=1&NewSearch=1>

¹⁰ <http://www.ic-badges-credentials.org/en/>

4 Impact on Project Partners

4.1 Awareness and institutional strategy development

MicroHE has transformed the institutions represented in the partnership, and inspired new projects and initiatives. DHBW is implementing a new concept of micro-credentials for dual learning and is preparing a proposal for the first European dual university based on micro-credential concepts developed in MicroHE. Furthermore, based on the work done in the project, DHBW is launching a new dedicated research centre on educational policies and practices. Tampere University has also launched a concept of ‘challenge-based micro-credentials’ within the ECIU European Consortium of Innovative Universities.

KIC has evolved into a new department dealing specifically with consulting on digital credentials, and is engaged with the Europass and EBSI Diploma Use Case designing European-scale public credentialing systems. EDEN has launched an interest group on micro-credentialing policy. JSI and K4A are jointly proposing a national credentialing system covering all educational levels to the Slovenian government based on their development of *credentify.eu*. Polytechnic University of Milan and Vytautas Magnus University have their own platforms for MOOCs and micro-credentials¹¹¹² Both are also, together with KIC, DHBW and other partners, engaged in the ECCOE project.

4.2 Credentify.eu: technology demonstrator for a blockchain-based credentials clearinghouse

In terms of technical implementation, the MicroHE consortium decided to build a credentials clearinghouse as a proof of concept of the absolute latest in credentialing technology – becoming the first organisation in the world to demonstrate the use of ERC-721 non-fungible tokens on a blockchain for storing credentials. While intended as a proof of concept, **credentify.eu** has evolved into a production service for digital credential issuing and a storage portal that uses blockchain technology.

Additionally, the open source code and lessons learned from the MicroHE implementation are being incorporated into tens of blockchain projects globally including the European EBSI Diploma Use case, the MIT digital credentials initiative, the Indonesian ICE initiative and Malta’s blockcerts programme.

¹¹ <https://www.pok.polimi.it/>

¹² <http://studyonline.lt/en/study-of-innovation/open-educational-resources/open-courses/>

The ECIU university alliance has recently completed a review of digital credentialing solutions to be used in their alliance-wide approach to micro-credentialing. In this review, Europass EDCI and Credentify were the two solutions with the highest ranking scores.

»Credentify is a decentralized micro-credentials clearinghouse powered by a blockchain network across European universities allowing safe transfer of millions of micro-credentials as smaller units summing up into ECTS credits. This empowers European students, educational workers and universities across Europe to make the accreditation of their traditional learning experience fast, dynamic, safe, reliable, transparent and accountable.

Credentify ensures that micro-credentials are certified and mapped to European qualifications frameworks and can scale into other forms of Higher Education. Credentify therefore empowers students and universities with equitable knowledge accreditation by allowing it to be more fair and flexible in its delivery. Credentify is built on native European technologies, extensive policy and research analysis and is integrated with ESCO to maximize impact in the European Education Area and Digital Single Market.«¹³

For more information, please consult:

<https://credentify.eu/>

<https://github.com/MicroCredentials/credentify-app-api>

4.3 Follow-up Projects

MicroHE has inspired a large number of follow-up projects that reach far beyond the MicroHE consortium. Prominent examples are ECIU university, a European universities project, and the formation of ICoBC, an association on badges and credentials. Each of these projects and initiatives focuses on a different aspect of the implementation of micro-credentials. The following list of projects is not exhaustive. It rather serves to demonstrate the thematic scope of the follow-up projects initiated by MicroHE consortium partners.

4.3.1 ECIU University

»The ECIU University is an EU-funded European University that will create a completely new educational model on a European scale. The ECIU University gathers together learners, teachers, and researchers to cooperate with cities and businesses and solve real-life challenges. The first three year phase of the ECIU University focuses on the UN Sustainable Development Goal 11 "Sustainable cities and communities".«¹⁴ To achieve its goals, ECIU university is implementing a micro-credentials and digital credentials strategy. ECIU University

¹³ <https://credentify.eu/>

¹⁴ <https://www.eciu.org/>

has published a white paper on micro-credentials¹⁵ and input to the upcoming micro-credentials Council Recommendation¹⁶

4.3.2 ECCOE

»The main aim of ECCOE [European Credit Clearinghouse for Opening up Education] is to facilitate the endorsement and appropriation of open, online and flexible higher education. In support of this overarching objective, the project aims to increase trust in technology-enabled credentials among students, higher education institutions (HEIs) and employers. [The ECCOE project intends to] [...]

- Develop quality descriptors for credentials relating to courses, modules, MOOCs and groups of competences;
- Create and validate a Model Credit Recognition Agreement which will be available in 6 languages (DE, EN, FR, IT, LT, NL);
- Set up an online catalogue of over 60 disciplinary and transversal modules which have passed the selection criteria for cross-institution recognition;
- Design a system for technology-enabled credentials;
- Lay the ground for wider take-up via the ECCOE-System network and piloting, by producing and disseminating the supporting documentation that institutional stakeholders need.«¹⁷

4.3.3 EdDiCo

The EdDiCo project (Supporting the Development of the Digital Competences of Educators) has created a learning maturity model for digital competences for educators. It is developing a self-assessment test for digital competences and will recommend the appropriate online learning opportunities based on the test result. »With the advent of each new technology come predictions of fundamental changes in education. Yet few of these changes have been realized. Digital learning may indeed be the technology that breaks that pattern, but this will only come to pass if educators are empowered to take advantage of the technologies and

¹⁵ https://assets-global.website-files.com/551e54eb6a58b73c12c54a18/6043a9dd006226486010050e_ECIU_Sheet-update_3032021.pdf

¹⁶ https://assets-global.website-files.com/562fb917aa38ca2e349b422e/609a2d42b3083b5c148def11_ECIU%20University%20input%20document%20for%20Micro_credentials%20Council%20Recommendation.pdf

¹⁷ <https://eccoe.eu/>

methodologies available to them. The EdDiCo project aims at empowering individual educators to

- identify the potential technology holds to transform and improve the education they offer,
- identify the digital competences they would need to acquire to take advantage of those technologies and associated methodologies;
- find the educational resources necessary to acquire those competences. «¹⁸

4.3.4 MicroCredX

DHBW will submit a proposal for the MicroCredX (MicroCredentials Exchange) project in May 2021. The five universities in the consortium will create a pool of micro-credentials to be shared among the partners and to be integrated into each other's curriculum. The idea is to pilot the networking approach with micro-credentials in the engineering and IT domains, and based on these experiences to extend the coverage to more departments and study programmes.

4.3.5 Digi-Prof

The Digi-Prof project (Transparent Assessment for Online Learning by Digitally Competent Professors) will use the DigCompEdu framework to develop training material for HE teachers, explaining how transparent assessment, learning analytics and digital tools can enhance online student learning. The following project results are planned:

- Training Material: Design transparent assessment strategies for online learning in HE
- Training Material: Monitor, support & engage students based on the evidence generated by digital technologies
- Training material: Ensuring digital and micro-credentialing of learning as a part of transparent assessment for recognition of learning outcomes
- Guidelines for HE institutions to implement transparent assessment of learning outcomes for online & blended learning
- 10 BA courses for virtual and blended cooperation of consortium institutions
- Open Educational Practices of transparent assessment for online learning, student engagement and micro-credentialing

¹⁸ <https://eddico.eu/>

5 Impact on Participants

5.1 Surveys and Interviews

By surveying and consulting hundreds of HEI practitioners and influential decision makers, and by providing well-argued future forecasts, MicroHE made tangible contributions to fostering a wider understanding and acceptance of terms, methodologies and technologies supporting micro-credential awarding and recognition. Continued efforts are necessary to sustain and strengthen HEIs' openness towards trusting third party credentials and to devise and facilitate supporting technologies and services, but MicroHE clearly helped pave the way where continued efforts can advance the important journey that we embarked on almost 4 years ago. 93 experts participated in our WP1 survey on the scope of micro-credentials in Europe. 30 HEI representatives were interviewed in the frame of the WP3 work on the credit supplement and on the user's guide (46 interviews in total).

5.2 Delphi Study

A total of 23 experts took part in all the stages of our WP2 DELPHI study. They acknowledge the potential of micro-credentials in supplementing a future landscape for higher education that puts learners at its centre. There are certain barriers that would need to be tackled to get there. Some of these barriers are:

- The need for a common understanding and awareness regarding the definition and impact of micro-credentials amongst the different stakeholders' networks.
- The need for effective strategies for understanding when and where micro-credentials fit in and how to fulfil their requirements.
- The need for standardization has been identified as one of the principal requirements when it comes to accreditation practices and formalisation of micro-credentials.
- Collaboration is key when it comes to a micro-credential powered future of HEIs. Open dialogue between HEIs, industry actors (such as future employers and content providers) and government stakeholders regarding issues like defining market skill requirement and providing quality assurance could make a difference.
- Lastly, an attitude shift towards understanding the ephemeral nature of skills needed in a continuously metamorphosing world of work characterised by rapid technological advancement is required in the inherently cautious education sector.

5.3 Digital Credentials Masterclass

The Digital Credentials Masterclass, held in October 2019, brought together 23 key experts to discuss the future development of micro-credentialing. Through thematically clustered presentations and interactive workshops the participants investigated the potential of micro-

credentials to transform the European Higher Education landscape, from the perspectives of policy, technology, pedagogy and institutional strategy. It explored aspects like access to education, development and information on learning opportunities, programme delivery, quality assurance, recognition or credit transfer and accumulation.

5.4 European Expert Workshop

The European Expert Workshop, held in October 2019 alongside the Digital Credentials Masterclass, brought together 23 key experts to discuss the draft of a proposed micro-credentials credit supplement, the contents of a micro-credentials user's guide and future development of micro-credentialing.

5.5 National Workshops

National Workshops with experts in the field were conducted to validate the concepts of the MicroHE meta-data standard, the credit supplement and the user's guide. They took place at various stages of the development and helped to refine the concepts in an iterative process.

- 15 February 2019, organised by DHBW in Germany (25 participants)
- 16 January 2020, organised by VMU in Lithuania (8 participants)
- 21 January 2020, organised by VMU in Lithuania (10 participants)
- 24 January 2020, organised by VMU in Lithuania (30 participants)
- 30 January 2020, organised by DHBW in Germany (20 participants)
- 4 February 2020, organised by TAU in Finland, online (60 participants)
- 28 May 2020, jointly organised by KIC, K4A and JSI in Slovenia (20 participants)
- 20 April 2020, organised by FPM in Italy (3 participants)
- 10 June 2020, organised by EDEN as an international expert panel, online (63 participants)

5.6 MicroHE Final Conference

The MicroHE Final Conference, held on 23 June 2020 in the frame of the EDEN 2020 Annual Conference, provided the opportunity to share most of our outputs and recommendations with a larger public. Over 100 participants listened to Anthony Camilleri's keynote presentation, the video recording of which had an additional 100+ views (while the slides were viewed 272 times), and over 100 participants followed collectively the 3 subsequent workshops that were titled: (A) Impact of micro-credentials on new learner paradigms; (B) Technology powering the future of micro-credentials and (C) Impacts of Micro-Credentials on Institutional Processes.

Altogether 150 individuals participated in our Final Conference (plus, the recording is available on YouTube and has more than 300 views).

6 Impact on the Community

Throughout the project, we gathered a group of top experts from educational policy, institutional management and educational technology to guide us on all our activities. Utilising a sophisticated Stakeholder Analysis Matrix, we could optimise the engagement of high-level experts and HEI representatives in our more targeted closed feedback gathering activities, such as our survey on Micro Credentials in Europe, the invitation-based Masterclass, and the 4 stages of our DELPHI.

We fed back to the community via multiple conference papers and interactive workshops, and contributed to a growing body of research on, and publications about future applications of micro-credentials. These activities included attending conferences and workshops (e.g. EDEN Annual Conferences and the 2020 Research Workshop, the ICDE World Conference, OEB Global, etc. – see detailed information in the subsequent Dissemination and Impact sections of this report), sharing and multiplying the project's findings with strategically selected audiences. In addition to conference paper publications, demonstrating the sustained trust in, and commitment to, the MicroHE achievements and outputs, the MicroHE partners, together with some renowned academics in the field, are currently engaged in the authoring of a book to be submitted to the *SpringerBriefs in Education* series, an innovative product type that combines elements of both journals and books.

7 Conferences and Events

7.1 MicroHE Conferences

7.1.1 Digital Credentials Masterclass

- 24-25 October 2019, **MicroHE Digital Credentials Masterclass**, Bled, Slovenia (23 participants)
<https://microcredentials.eu/digital-credentials-masterclass/#agenda>

7.1.2 MicroHE Final Conference

- 23 June 2020, **MicroHE Final Conference at EDEN Annual Conference 2020**, Online. (179 participants)
<https://microcredentials.eu/microhe-eden2020/>
https://www.eden-online.org/2020_timisoara/microhe-final-conference/
<https://www.youtube.com/watch?v=J45bWtByGe0> (134 views)

7.2 Conference Contributions

Our most impactful presentations at external conferences had the following thematic focus:

- MicroHE was presented in a keynote speech in June 2018 at the EDEN 2018 Annual Conference entitled “Exploring the Micro, Meso and Macro: Navigating between dimensions in the digital learning landscape”. In addition to the over 320 delegates who attended the event at the University of Genova, the plenary recording had 236 views, while Anthony Camilleri’s slides have been viewed 372 times.
- On 3 December 2020 MicroHE presented, in a panel of co-presenters that included LinkedIn Learning and representatives of the International Council on Badges and Credentials [ICoBC], at OEB Global, one of the world’s largest edtech conferences, that attracts every year 2500+ practitioners, technology providers and high-level decision-makers from the education, business and government sectors. Our session, entitled “Recognition of Digital (Micro)credentials – The Trust Factor”, had a highly engaged and inquisitive audience of about 100 participants, many of which were high power, high impact influencers, and authors of the best known literature in the area of micro-credentialing.

7.2.1 International Conferences and Events

- 20 April 2018, **EURASHE Annual Conference 2018**, Tallin, Estonia, Presentation on Micro-Credentials and the MicroHE project.
<https://www.eurashe.eu/events/annual-conferences/28-tallinn-2018/>
- 17 May 2018, **Blockchain, Credentials and Connected Learning Conference, Malta**. Keynote Speech: Empowering Networks through Decentralisation: Blockchain Applications for Education (200 participants)
<https://3clevents.com/programme/>
- 19 June 2018, **27th EDEN Annual Conference, Genoa, Italy**.
 - Keynote Speech: Beyond the Hype: a Blockchain Perspective to Educational Management (320 participants)
http://www.eden-online.org/2018_genoa/resources/
<https://www.slideshare.net/anthonymcamilleri/beyond-the-hype-a-blockchain-approach-to-educational-management> (372 views)
https://youtu.be/9n_sLsRBhik (236 views)
 - Workshop/Conference Paper: Support Learning through Microcredentialing – The Case of the MicroHe Initiative (20 participants)
http://www.eden-online.org/2018_genoa/wp-content/uploads/2018/05/genova-programme-booklet-v1.2.pdf
- 11 September 2018, **Danube Rectors' Conference 2018, Bratislava, Slovakia**. Presentation on Micro-Credentials and the MicroHE project.
<https://www.drc-danube.org/2018/07/12/registration-for-the-drc-annual-conference-2018/>
- 26 October 2018, **OEPass Multiplier Event at the EDEN Research Workshop, Barcelona, Spain**. Presentation on MicroHE. (20 participants)
http://www.eden-online.org/2018_barcelona/programme/
- 16 November 2018, **13th European Quality Assurance Forum, Vienna, Austria**. Presentation on Quality Criteria of Credentials (30 participants)
<https://eua.eu/events/14:13th-european-quality-assurance-forum.html>
- 16 May 2019, **EURASHE Annual Conference, Budapest, Hungary**: Presentation on Creating a Meta-Data Standard for Digital Credentials and Recognition of Open Learning (35 participants)
<https://www.eurashe.eu/tag/2019-annual-conference/>
- 18 June 2019, **28th EDEN Annual Conference, Bruges, Belgium**. Workshop on Utilising a Meta-Data Standard for Digital Credentials and Recognition of Open Learning (15 participants)
https://www.eden-online.org/eden_conference/bruges/

- 7 November 2019, **ICDE World Conference on Online Learning, Dublin, Ireland**. Paper Presentation Utilising a Meta-Data Standard for Digital Credentials and Recognition of Open Learning (15 participants)
https://wcol2019.ie/conference_papers/
- 9 December 2019, **Strategies Beyond Borders Conference of DAAD and HFD, Berlin, Germany**. Strategy Workshop: Digital Credentials and Recognition (30 participants)
<https://hochschulforumdigitalisierung.de/de/strategies-beyond-borders-conference-2019>
- 12 December 2019, **EUA SP-HERE Conference, Prague**. Presentation entitled: Credentialing open non-formal learning in Higher Education: the MicroHE approach (20 participants)
<https://supporthere.org/prague2019/page/programme-24>
https://microcredentials.eu/wp-content/uploads/sites/20/2019/12/SP-HERE_MicroHE_PPT_EDEN.pdf
- 2-4 May 2020, **12th International Conference on Computer Supported Education, Online**. Presentation entitled Can Blockchain Technology Facilitate the Unbundling of Higher Education? (20 participants)
<https://www.scitepress.org/PublicationsDetail.aspx?ID=+gNsq2h3oL8=&t=1>
- 2 December 2020, **OEB Global 2020, Online**, Panel session entitled Recognition of Digital (Micro)credentials – The Trust Factor (100 participants)
<https://oeb.global/programme/agenda/oeb-20/sessions/kes306>

7.2.2 International Webinars

- 6 November 2018, **European Distance Learning Week 2018** Line Between Non-Formal and Formal Education. Presentation on Open Credentials for open Education: Moving the needle forward (33 participants)
<https://www.slideshare.net/IldikoMazar/open-credentials-for-open-education>:
<https://knowledgeinnovation.eu/european-distance-learning-week-2018/>
- 6 March 2019, **Open Education Week 2019**, Ongoing initiatives for Open Education in Europe (30 participants)
http://www.eden-online.org/eden_conference/ongoing-initiatives-for-open-education-in-europe/
- 8 March 2019, **Open Education Week 2019**, Presentation on Open Credentials for Open Education (3 participants)
<https://www.openeducationweek.org/events/open-credentials-for-open-education>
<https://www.slideshare.net/IldikoMazar/oeweek-2019-open-credentials-for-open-education>

- 6 March 2020, **Open Education Week 2020**, Presentation on Open Education Recognition and Credentials
http://www.eden-online.org/eden_conference/open-education-recognition-and-credentials/
<https://www.youtube.com/watch?v=4mAlCyRuMR0>
<https://www.slideshare.net/anthonymcamilleri/a-european-context-on-open-recognition-and-credentials> (509 views)
- 11 May 2020, **Coordination Webinar - Erasmus+ Funded Projects on Micro-credentials** (26 participants)
<https://www.slideshare.net/anthonymcamilleri/microhe-observations-on-microcredentials-233558824> (735 views)
- 10 June 2020, EDEN Webinar Series. MicroHE expert panel workshop as WP3 Workshop on Credit Supplement, User's Guide and Recognition of Open Learning (84 participants)
<https://www.eden-online.org/microhe-expert-panel-workshop/>
<https://www.youtube.com/watch?v=KPMSKlbfQXo> (197 views)
- 26-27 November 2020, **SPHERE Online Seminar: Exploring micro-credentials: Why, how and which way forward**. Panel discussion on: Transparency with micro-credentials and recognition
<https://supportthere.org/micro-credentials/page/programme-26>

7.2.3 Conferences and Events in Finland

- 4 February 2020, **ECIU University meeting, WP3 Workshop on Credit Supplement, User's Guide and Recognition of Open Learning**, organised by TAU in Finland, online (60 participants)

7.2.4 Conferences and Events in Germany

- 26 September 2018, **Bologna Goes Digital Conference of DAAD and HFD, Berlin, Germany**: Workshop on Quality of credentials in open education: pathways and technologies for recognition, transparency, and portability (15 participants)
<https://hochschulforumdigitalisierung.de/de/bologna-goes-digital>
- 31 January 2019 **LEARNTEC 2019 Conference, Karlsruhe, Germany**. Presentation on Blockchain in Education (15 participants)
<https://www.learntec.de/de/learntec/themenbereiche/beruf/beruf-news/mehr-als-bitcoin-die-blockchain-in-der-welt-des-lernens.html>
- 15 February 2019, **DHBW Fachtag 2019, Heilbronn, Germany**. **WP3 Workshop on Credit Supplement, User's Guide and Recognition of Open Learning**, organised by DHBW in Germany (25 participants)

- 15 February 2019 **DHBW Fachtag 2019, Heilbronn, Germany**. Workshop entitled: Digital Learning: DHBW 2025 – offen, digital, flexibel (26 participants)
- 30 January 2020 **DHBW Forschungstag 2020 Mosbach, Germany**. Workshop entitled: Forschungsgeleitete Lehre: Anerkennung und Anrechnung leichtgemacht (29 participants)
- 15 October 2020 **Industrie- und Handelskammer Nürnberg für Mittelfranken, Ausschuss für Fachkräftesicherung, Nürnberg, Germany**. Workshop entitled: Was sind Micro-Credentials und wofür sind sie gut? (27 participants)

7.2.5 Conferences and Events in Italy

- 20 April 2020, **WP3 Workshop on Credit Supplement, User's Guide and Recognition of Open Learning**, organised by FPM in Italy (3 participants)

7.2.6 Conferences and Events in Lithuania

- 16 January 2020, **WP3 Workshop on Credit Supplement, User's Guide and Recognition of Open Learning**, organised by VMU in Lithuania (8 participants)
- 21 January 2020, **WP3 Workshop on Credit Supplement, User's Guide and Recognition of Open Learning**, organised by VMU in Lithuania (10 participants)
- 24 January 2020, **Annual Conference of LieDM-Lithuanian Distance and E-Learning Association, Lithuania**. Presentation on Recognition and Grading of Open Learning Competences (30 participants)
<https://konferencija2020.liedm.net/sessions/a2-sesija/>

7.2.7 Conferences and Events in Slovenia

- 7 June 2018, **Open Education Design Workshop, Vipava, Slovenia**. Workshop on Open Credentials for Open Education (20 participants)
<https://unesco.ijs.si/event/open-education-design/>
http://videlectures.net/educationdesign2018_vipava/
http://videlectures.net/educationdesign2018_camilleri_open_credentials/ (721 views)
<https://www.slideshare.net/anthonymcamilleri/open-credentials-for-open-education-moving-the-needle-forward> (1,330 views)
- 28 May 2020, **WP3 Workshop on Credit Supplement, User's Guide and Recognition of Open Learning**, jointly organised by KIC, K4A and JSI in Slovenia (20 participants)

7.2.8 Conferences and Events in Spain

- 23 November 2018, **MOONLITE Multiplier Event, Madrid, Spain**. Presentation on Open Education Passports and Micro Credentials for Refugees and Migrants (30 participants)
<https://moonliteproject.eu/events/i-moonlite-multiplier-events/i-moonlite-multiplier-event-moocs-for-university-teaching-and-supporting-refugees/>
<https://www.slideshare.net/IldikoMazar/open-education-passports-and-micro-credentials-for-refugees-and-migrants> (135 views)

7.3 Bilateral consultation with people outside the partnership

During the lifetime of the MicroHE project, numerous meetings and consultations with related projects and initiatives have taken place. The list below contains a few examples of the meetings that have taken place:

- 2018 **Skills Singapore Delegation**: Meeting in Heilbronn to exchange ideas on micro-credentials (3 participants)
- 2018 **E-SLP and EMC Projects (EADTU)**: Online meeting to coordinate micro-credentials survey, definitions & glossary (1 participant)
- 2018, 2019, 2020 **OEPass Project**: Regular meetings to coordinate the work on the credentials supplement (20 participants)
- September 2020 **EUA Digi-HE Project**. Presentation and discussion on Micro-credentials (20 participants)
- 15 December 2020, **Enhance European University Consortium**. Presentation on Micro-Credentials (20 participants)

7.4 Slideshare

Dissemination on social media was done through the accounts of the partner institutions and through the individual accounts of the researchers engaged in MicroHE. Additional impact was achieved by publishing presentations on Slideshare.

<https://www.slideshare.net/anthonymamilleri/>

<https://www.slideshare.net/IldikoMazar/>

8 Publications

8.1 MicroHE Reports and Public Deliverables

All MicroHE reports are available online at <https://microcredentials.eu/publications/>

- **Micro-Credentials in the Future European Policy Landscape. Digital Credentials Masterclass Interactive Conference Magazine.**
https://microcredentials.eu/wp-content/uploads/sites/20/2021/05/MicroHE_Digital_Credentials_MasterClass_Magazine_v6.pdf
- **D1.3 Scope of Micro-Credentials in Europe**
<https://prezi.com/view/B08CJR67sFpc1QE8Uii1/>
<https://microcredentials.eu/publication/microhe-d1-3/#/>
- **D2.2 Delphi Result: Future Impacts of Micro-Credentialing in Europe**
<https://microcredentials.eu/wp-content/uploads/sites/20/2021/05/D2.2.Future-Impacts-of-Micro-Credentialing-on-European-Higher-Education-1.pdf>
- **D3.1 Briefing Paper on Challenges of Micro-Credentials**
<https://microcredentials.eu/wp-content/uploads/sites/20/2021/05/D3.1-Interviews-with-Key-Stakeholders-Decision-Makers-Overall-Summary-Report.pdf>
- **D3.2 Credit/Module Supplement**
https://microcredentials.eu/wp-content/uploads/sites/20/2021/01/D3.2_Credit-Supplement.pdf
 - OEPass shared learning passport
<https://oepass.eu/data-and-software-business/>
 - EDCI credential
<https://europa.eu/europass/digital-credentials/viewer/#/shareview/IT4S9M54rniH6ReQ>
- **D3.3 User's Guide**
https://microcredentials.eu/wp-content/uploads/sites/20/2021/05/D3_3_MicroHE-Users-Guide.pdf
- **D4.1 Meta-Data Standard**
<https://github.com/MicroCredentials/MicroHE>
- **D4.2 Credentials Clearinghouse**
<https://credentify.eu/>
<https://github.com/MicroCredentials/credentify-app-api>
- **D6.5 Impact Audit**

8.2 GitHub

8.2.1 MicroHE Meta-Data-Standard

<https://github.com/MicroCredentials/MicroHE>

8.2.2 Credentify.eu

<https://github.com/MicroCredentials/credentify-app-api>

8.3 Academic papers

- 1 Camilleri, Anthony; Ehlers, Ulf-Daniel; Hudak, Raimund; Pirkkalainen, Henri; Uggeri, Matteo (2018): **Support Learning through Microcredentialling – The Case of the MicroHe Initiative**. EDEN Annual Conference 2018 Proceedings. Available online at https://www.researchgate.net/profile/Ulf-Ehlers/publication/327551732_SUPPORT_LEARNING_THROUGH_MICROCREDENTIALLING-THE_CASE_OF_THE_MICROHE_INITIATIVE/links/5b962ed8a6fdccfd54386532/SUPPORT-LEARNING-THROUGH-MICROCREDENTIALLING-THE-CASE-OF-THE-MICROHE-INITIATIVE.pdf, checked on 1/10/2021.
- 2 Camilleri, Anthony F.; Rampelt, Florian (2018): **Assuring the Quality of Credentials to support Learning Innovation**. In *Papers and Presentations - European Quality Assurance Forum (Online)*. Available online at <https://eua.eu/resources/publications/790:assuring-the-quality-of-credentials-to-support-learning-innovation.html>, checked on 1/10/2021.
- 3 Ehrenreich, Jochen; Trepulè, Elena (2020): **Utilising a Meta-Data Standard for Digital Credentials and Recognition of Open Learning**. In: Proceedings of the 2019 ICDE World Conference on Online Learning, Volume 1, vol. 1, pp. 208–222. Available online at https://zenodo.org/record/3804014#.Xrw0uS_MyL8, checked on 1/10/2021.
- 4 Sood, Ira; Pirkkalainen, Henri; Camilleri, Anthony (2020 - 2020): **Can Blockchain Technology Facilitate the Unbundling of Higher Education**. In: Proceedings of the 12th International Conference on Computer Supported Education. 12th International Conference on Computer Supported Education. Prague, Czech Republic, 5/2/2020 - 5/4/2020: SCITEPRESS - Science and Technology Publications, pp. 228–235. Available online at <https://www.scitepress.org/PublicationsDetail.aspx?ID=+gNsg2h3oL8=&t=1>, checked on 1/10/2021.

9 Citations of MicroHE

While we cannot meaningfully track how many times the MicroHE project and its project results were referred to in publications not controlled by us, we are aware of a number of high-level publications that made a reference to MicroHE. The list below can serve as an indication of the impact that the MicroHE project has generated.

- Brown, Mark; Mhichíl, Mairéad Nic Giolla; Mac Lochlainn, Conchúr; Pirkkalainen, Henri; Wessels, Olga (2021): **Paving the Road for the Micro-Credentials Movement**. ECIU UNIVERSITY WHITE PAPER ON MICRO-CREDENTIALS. Available online at <https://www.eciu.org/news/paving-the-road-for-the-micro-credentials-movement>, checked on 5/12/2021.
- Camilleri, Anthony; Werner, Thomas; Hoffknecht, Andreas; Sorge, Andreas: **Blockchain in der Hochschulbildung. Grundlagen - Potenziale - Grenzen**. Available online at <https://www.stifterverband.org/blockchain-in-der-hochschulbildung>, checked on 5/12/2021.
- Christmann-Budian, Stephanie; Kuchelmeister, Ulrich; Kuhne, Judith; Mah, Dana-Kristin; Paulicke, Prisca; Rebentisch, Jan et al. (2018): **IT-Governance in der internationalen Hochschulkoooperation (IT-GOV). Studienbericht: Handlungselemente und internationale Entwicklungen der IT-Governance im Kontext der Studierendenmobilität**. Berlin. Available online at https://www.iit-berlin.de/iit-docs/aa4d69d69bfd489e976ae5d477f36e30_190124_iit-IT-Governance.pdf, checked on 5/12/2021.
- Duklas, Joanne (2020b): **Micro-Credentials. Trends in Credit Transfer and Credentialing**. Published by British Columbia Council on Admissions and Transfer. Available online at <https://www.bccat.ca/pubs/Reports/MicroCredentials2020.pdf>, checked on 5/14/2021.
- European project MICROBOL (Ed.) (2020): **Micro-credentials linked to the Bologna Key Commitments. Desk research report**. Available online at <https://microcredentials.eu/wp-content/uploads/sites/20/2020/09/MICROBOL-Desk-Research-Report.pdf>, checked on 5/12/2021.
- Hanafy, Ahmed (2020): **Features and Affordances of Micro-Credential Platforms in Higher Education**: Master of Science Thesis, Tampere University. Available online at <https://trepo.tuni.fi/handle/10024/124188>, checked on 5/12/2021.

- Kato, Shizuka; Galán-Muros, Victoria; Weko, Thomas (2020): **The emergence of alternative credentials** (OECD Education Working Papers, 216). Available online at <https://www.oecd.org/publications/the-emergence-of-alternative-credentials-b741f39e-en.htm>, checked on 5/12/2021.
- Orr, D.; Pupinis, M.; Kirdulyté, G. (2020): **Towards a European approach to micro-credentials: a study of practices and commonalities in offering micro-credentials in European higher education**. NESET report. Luxembourg. Available online at <https://ec.europa.eu/education/sites/default/files/document-library-docs/towards-european-approach-micro-credentials-analytical-report.pdf>, checked on 5/12/2021.
- Rampelt, Florian; Orr, Dominic; Knoth, Alexander: **Bologna Digital 2020. White Paper on Digitalisation in the European Higher Education Area**. Available online at <https://hochschulforumdigitalisierung.de/de/news/white-paper-bologna-digital-2020>, checked on 5/12/2021.
- Resei, Christian; Staubitz, Thomas (2019): **Micro-Credentials in EU and Global**. Available online at https://www.corship.eu/wp-content/uploads/2019/07/Corship-R1.1c_micro-credentials.pdf, checked on 5/12/2021.
- Robert Rentzsch (2021): **Digitale-Bildungsnachweise. Der Stand 2020 in Deutschland und Europa**. Berlin. Available online at <https://www.iit-berlin.de/wp-content/uploads/2021/03/Digitale-Bildungsnachweise-2021.pdf>, checked on 5/12/2021.
- Selvaratnam, Ratna Malar; Sankey, Michael (2021): **An integrative literature review of the implementation of micro-credentials in higher education: Implications for practice in Australasia**. In 12 (1), pp. 1–17. DOI: 10.21153/jtlge2021vol12no1art942.
- Shapiro Futures, Hanne; Andersen, Tine; Larsen, Kristine Nedergaard (2020a): **A European approach to micro-credentials. Background paper for the first meeting of the consultation group on micro-credentials - Annex 1**.
- Shapiro Futures, Hanne; Andersen, Tine; Nedergaard Larsen, Kristine (2020b): **A European approach to micro-credentials. Output of the Micro-credentials higher education consultation group : final report**. Luxembourg: Publications Office of the European Union. Available online at <https://op.europa.eu/en/publication-detail/-/publication/7a939850-6c18-11eb-aeb5-01aa75ed71a1>, checked on 5/12/2021.
- Stęchły, Wojciech; Nowakowski, Michał: **Szanse i zagrożenia związane z nowymi rodzajami poświadczania umiejętności. Microcredentials, open badges, ECVET oraz osiągnięcia w ZSK**. With assistance of Instytut Badań Edukacyjnych, Warszawa, Szkoła Główna Handlowa w. Fundacja Rozwoju Systemu Edukacji. Available online at <https://depot.ceon.pl/handle/123456789/19698>.

- Wheelahan, Leesa; Moodie, Gavin (2021): **Analysing micro-credentials in higher education: a Bernsteinian analysis.** In Journal of Curriculum Studies 53 (2), pp. 212–228. DOI: 10.1080/00220272.2021.1887358.

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. To achieve its goals the project conducted the following activities:

- gathering the state of the art in micro-credentialing in European Higher Education today, by organising the first European survey on micro-credentials in HE, 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 impacts of continued modularisation of Higher Education on HE 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 in a way compatible with ECTS, the diploma supplement and qualification frameworks
- proposing a meta-data standard and developing an online clearinghouse to facilitate recognition, transfer and portability of micro-credentials in Europe.



Co-funded by the
Erasmus+ Programme
of the European Union