

Deliverable D2.2 - DDS-MAP Consultative Workshops and Multiplier Events

Date: 13/10/2025

DDS_MAP



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DDS-MAP

PROJECT DURATION:	2023/03 - 2025/8
WP:	2
DELIVERABLE:	Deliverable D2.2 - DDS-MAP Consultative Workshops and Multiplier Events
LEAD BENEFICIARY:	SETU
SUBMISSION DATE:	13/10/2025
DISSEMINATION LEVEL:	Public



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1. Executive Summary

The Dynamic Digital Skills for Medical and Allied Professions (DDS-MAP) project has undertaken a comprehensive programme of consultative workshops and stakeholder engagement activities across partner countries to ensure the co-design, validation, and quality assurance of its outputs. These workshops brought together higher education institutions, accreditation bodies, healthcare organisations, students, regulators, and professional associations to shape the development of DDS-MAP's modules and to explore their future accreditation as micro-credentials.

Regional workshops enabled targeted dialogue within national contexts, allowing project partners to present modules, gather structured feedback, and initiate cooperation with accreditation agencies. Stakeholders highlighted the growing importance of flexible and modular training to meet the evolving digital competencies required in healthcare. Engagements also emphasised the need to align DDS-MAP modules with European and national qualification frameworks, ensuring portability and recognition across professional and regulatory systems.

The consultative process culminated in a pan-European multiplier event in Brussels, which consolidated the insights from national workshops and showcased DDS-MAP's achievements to a wider international audience of healthcare professionals, policymakers, and academics. The event provided a platform to debate accreditation strategies, demonstrate innovative learning tools such as VR and AR simulations, and explore the role of micro-credentials in strengthening workforce resilience.

Taken together, these activities have:

- Built strong national and international partnerships between education, healthcare, and policy stakeholders.
- Advanced dialogue on the accreditation and recognition of digital micro-credentials in healthcare.
- Ensured DDS-MAP outputs are grounded in the real needs of students, educators, professionals, and regulators.

- Positioned DDS-MAP as a European leader in developing innovative, practice-oriented digital learning resources.

By combining national consultations with a final multiplier event, DDS-MAP has created both bottom-up and top-down pathways for embedding digital skills training into healthcare education and professional development, ensuring that its results are sustainable, relevant, and aligned with European strategies for lifelong learning and resilience.

2. Introduction

This deliverable presents the detailed outcomes of the DDS-MAP consultative workshops and the final multiplier event. The content is organised around two core elements: national case studies and the culminating European conference.

The national case studies document how partner institutions in Slovenia, Croatia, Germany, Ireland, Latvia, Lithuania, Poland, and Italy engaged with students, healthcare professionals, regulators, and accreditation bodies. Each case study outlines the consultation process undertaken, the themes that emerged, and the progress achieved in aligning the DDS-MAP modules with national education and professional development frameworks. Together, they provide a comparative picture of the diverse policy and institutional contexts in which DDS-MAP has operated, while highlighting common challenges such as accreditation readiness, quality assurance, and the distinction between micro-credentials and traditional continuing professional development.

The report then turns to the Final European Conference, held in Brussels in June 2025, which consolidated insights from the national engagements and created a space for dialogue at the European level. The conference programme combined policy contributions, panel discussions, and interactive workshops with demonstrations of digital learning tools such as AR and VR. By drawing together academics, policymakers, healthcare professionals, and civil society actors, the event served as both a showcase of DDS-MAP's results and a forward-looking forum on the future of digital skills in healthcare.

In this way, the deliverable moves from the local to the European, showing how DDS-MAP combined national consultations with international dialogue to ensure that its results are relevant, recognised, and sustainable. The sections that follow provide a country-by-country account of the workshops, followed by an overview of the Brussels conference proceedings and their implications for future accreditation and implementation.

3 Workshops and engagement activities in Poland

3.1 National Context

-In February 2022, the Ministry of Education and Science established an Advisory Team on Micro-qualifications for higher education. Its remit includes defining a national definition, consulting stakeholders, and preparing recognition mechanisms. The initiative aligns with the EU Council Recommendation (June 2022), prompting member states—including Poland—to support micro-credentials for lifelong learning and employability.

- Since October 2023, the Educational Research Institute (IBE-PIB) has been running a pilot project (“Microcredentials – Supporting Lifelong Learning”), co-funded by EU Social Development Funds (FERS). This pilot has already issued the first digital micro-credentials through IBE’s Odznaka+ platform. Phase II is underway, with more universities and private entities joining.

- A Microcredentials Advisory Group, launched in March 2024, works across ministries, academia, employers, and NGOs to shape Poland’s standards for design, issuance, and quality assurance.

- Micro-credentials issued via pilot are not yet part of the Integrated Qualifications Register (IQR), which remains reserved for nationally regulated qualifications across education and vocational sectors. Accreditation by the Polish Accreditation Committee (PKA) is not yet mandated; micro-credentials currently operate outside traditional programme accreditation. The digital model is intentionally hybrid—supportive of commercial providers but with public-sector quality safeguards.

- Awareness is uneven, legal frameworks are still emerging, and quality assurance processes need implementation to avoid misuse or inflation of low-credibility badges.

- Poland is actively piloting a trusted, standardised micro-credential system driven by IBE-PIB, with frameworks informed by EU guidelines. This emerging ecosystem centres on Odznaka+ as a digital platform that issues credentials in a rigorously quality-assured manner. However, micro-credentials remain outside formal accreditation infrastructure like the Integrated

Qualifications Register or PKA oversight, awaiting further legal definition and institutional adoption.

3.2 Workshops and engagement activities

The Medical University of Lublin engaged in the following activities:

- Meeting with the MUL Vice-Rector for Educational Affairs Professor, Kamil Torres (28.06.2023).



- Development of micro-credentials implementation strategy: - workshops for healthcare professionals during the Medical University of Lublin Quality Days; - cooperation with nursing/medical professional self-regulatory bodies and professional associations to promote micro-credentials and its accreditation. E.g.: 8-9 December 2023 - Lecture on micro credentials given by Kinga Zdunek (DDS-MAP team); 2-6 December 2024 - Workshops on micro credentials by Magdalena Dziurka (DDS-MAP team)
- E-learning course on „Microcredentials” on Moodle, MUL 2024/2025 (77 participants enrolled from MUL)

- Cooperation with Plenipotentiary for digitization at MUL: development of Strategy of implementation micro credentials at MUL; Establishing the team at MUL for introducing micro credentials

- 9-10 November 2023, the 2nd National Scientific and Training Conference "Nursing of the 21st century - successes and challenges" in Lublin: Lecture: "Microcredentials - a new proposal for the professional development of nurses and midwives", and panel discussion on challenges regarding CPD in nursing - with President of Lublin's Chamber of Nurses and Midwives (Dorota Flis), President of Polish Nurses Association (Grażyna Wójcik), President of Polish Nurses Association at MUL (Renata Domżał-Drzewicka) and provincial Consultants in the field of nursing.



9-10 November 2023, the 2nd National Scientific and Training Conference "Nursing of the 21st century - successes and challenges" in Lublin

- Cooperation with associations – Polskie Towarzystwo Pielęgniarek Anestezjologicznych i Intensywnej Opieki – invited to become associate member.

- The 2nd Central European Nursing Conference, held at the Medical University of Lublin, Poland, on September 13-14, 2024.



The 2nd Central European Nursing Conference, held at the Medical University of Lublin, Poland, on September 13-14, 2024.

- A session focused on the DDS-MAP project, showcasing its latest findings and contributions to the field, including the topic of Microcredentials and Continuing Professional Development. President of Lublin's Chamber of Nurses and Midwives (Dorota Flis) was invited and present at the conference.

3.3 Outcomes

Accreditation discussions were held with MUL authorities, professional associations and Chamber of Nurses and Midwives. As a result, a micro-credentials strategy has been developed and DDS-MAP modules are the first micro-credentials issued in MUL

- The first micro-credentials ready to be issued at MUL
- Further work on micro-credentials system at MUL and cooperation with Chambers to recognise micro-credentials and part of CPD system

4 Workshops and engagement activities in Slovenia

4.1 National context:

In Slovenia, micro-credentials are not yet formally regulated by the Higher Education Act. However, the Ministry for Higher Education, Science and Innovation, in cooperation with SQAA, is actively developing a national system. Micro-credentials are being piloted at several universities (e.g., Ljubljana, Maribor, Primorska). These are supported by internal institutional quality assurance systems. National guidelines, based on European standards, are being prepared to ensure recognition, portability, and quality of micro-credentials in the higher education sector.

Currently, recognition pathways are in development. Micro-credentials are not yet included in the formal qualification framework (Slovenian Qualifications Framework - SOK), but integration is planned. Each higher education institution is responsible for internal quality assurance. Recognition and transparency are emphasized at national and European levels, but a centralized recognition system is not yet operational.

4.2 Workshops and engagement activities

- Training on Microcredentials in Theory and Practice, held on 9th June 2023, organised by the University of Maribor.
- Consultation/workshop on Designing a QA Model for Microcredentials, held on 6th November 2023, organised by the Slovenian Quality Assurance Agency for Higher Education (SQAA).
- Meeting with the Deputy Secretary General for Education at the University of Maribor and representatives of the University of Maribor responsible for micro-credentials, held on 4th October 2024.

4.3 Outcomes

The meeting on 4th October 2024 covered a review of the Recommendations for the Development of Microcredentials at the University of Maribor and the national Guide for the Development of the Micro credential System in Slovenian Higher Education. Participants discussed the current state and future implementation of micro credentials, focusing on legal and procedural aspects of accreditation.

A detailed presentation of all four educational modules was given, followed by a discussion with university representatives. In addition, accreditation applications and syllabi were reviewed, with attention to alignment with national quality assurance guidelines and upcoming legal frameworks.

The University of Maribor engaged with the Deputy Secretary General for Education at the University of Maribor and representatives of the University of Maribor acting as institutional regulators, as national regulation has not been implemented yet.

Discussions focused on the current state of micro-credentials in Slovenia and at the University of Maribor, including legal limitations, institutional procedures, and strategic alignment with national guidelines. Specific attention was given to the process for submitting applications for micro-credential accreditation and the structure of module syllabi.

It was agreed that, until national legislation is adopted and formal accreditation becomes possible, participants will receive certificates of attendance for completed educational activities. In parallel, a complete application for accreditation, including syllabi for all modules, was submitted to the University of Maribor for internal evaluation and future recognition.

Challenges include the lack of a legal and regulatory framework, as integration into the Higher Education Act is still pending, the need for standardised national recognition procedures, ensuring consistent quality and transparency across institutions, and establishing interoperability with EU-level micro-credential systems.

Micro-credentials, once implemented and validated within the quality assurance system, will play a key role in lifelong learning by helping individuals become better prepared for future challenges. Once micro-credentials are formally recognized and implemented at the national level, higher education institutions will be able to officially issue accredited micro-credentials as part of their lifelong education. However, current practice shows that micro-credentials have limited motivational impact, as they are still largely unknown and unrecognized. Broader societal promotion is needed to raise awareness and value of micro-credentials.

5 Workshops and engagements in Ireland

5.1 National Context

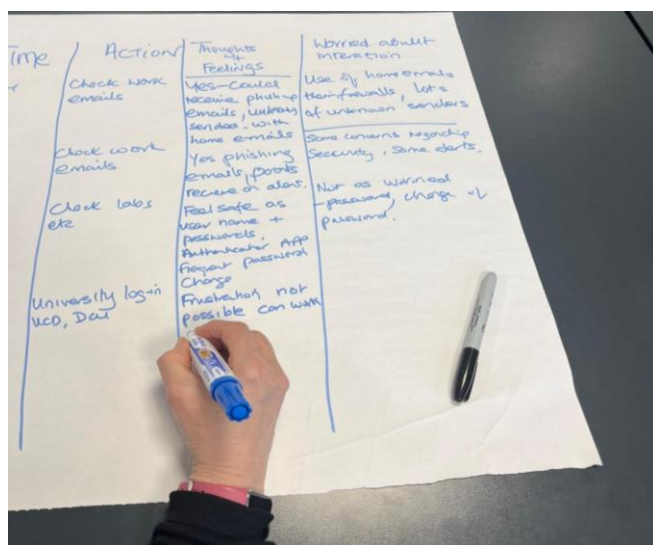
In Ireland, the recognition of micro-credentials remains at an early stage and is characterised by fragmentation. Although CPD is well established across regulatory bodies, there is no systematic framework for accrediting micro-credentials. SETU has been a leader in piloting accredited micro-credentials, but widespread adoption has yet to follow. Challenges include regulatory hesitation, confusion between CPD and micro-credentials, and uneven digital literacy among healthcare staff. Nonetheless, Ireland is well positioned to advance in this area by leveraging both national and European frameworks.

5.3 Workshops and engagement activities

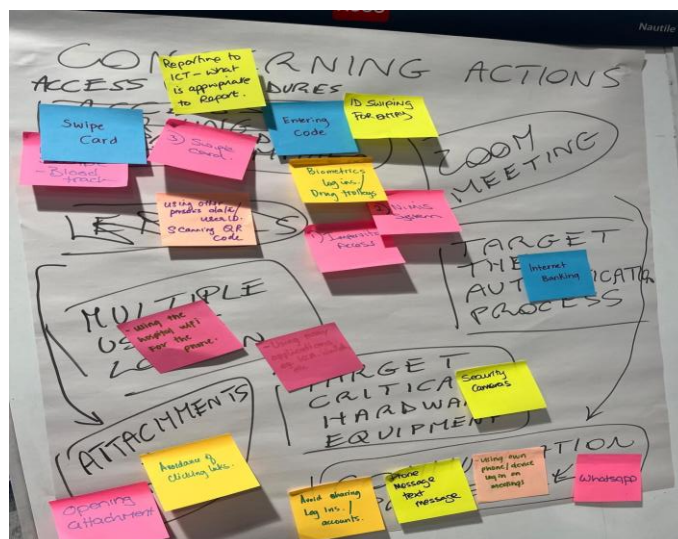
The national engagement in Ireland consisted of a series of interlinked activities coordinated by SETU in collaboration with UCD. A central workshop was held on 10 June 2025, featuring a presentation and structured discussion with 15 professional and representative bodies in the field of health. Participants included healthcare regulators, education quality managers, union representatives, and senior figures from the health service and professional bodies for example, representatives from CORU (statutory regulator for health and social care services), the National Nursing and Midwifery Board of Ireland (NMBI) (statutory regulator for nurses and midwives), Services Industrial Professional and Technical Union (SIPTU; Ireland's largest union), the Pharmaceutical Society of Ireland (PSI; statutory and professional body responsible for the regulation of pharmacists), and the Health Service Executive (HSE; Ireland's health service).

Alongside this main event, one-to-one meetings were organised with key stakeholders to examine micro-credential implementation and regulatory pathways in greater depth. SETU led a co-creation workshop using the ABC Instructional Design method to explore how micro-credentials could be embedded effectively in DDS-MAP modules during the development process. UCD led a dedicated co-creation workshop with critical care nurses, focusing on cybersecurity which informed cybersecurity-specific DDS-MAP module content. Drawing on the lived experience of nurses who had been directly affected by the CONTI cyberattack, the

workshop examined how micro-credentials could enhance digital resilience and prepare healthcare professionals to respond to evolving cyber threats.



Critical care nurses who had experienced the CONTI attack were asked to document their everyday experience of technology in the workplace



Areas of engagement and activity identified by the nurses

Across these engagements, discussions centred on the opportunities and challenges of introducing micro-credentials into healthcare and social care. Participants underlined the importance of distinguishing micro-credentials from traditional CPD, while recognising their potential in supporting digital literacy and upskilling. There was also strong emphasis on

harmonising minimum standards for digital competencies in healthcare across Europe and ensuring that national practices remain aligned with emerging EU frameworks.

5.3 Outcomes

The engagements provided an opportunity to work closely with key regulators including CORU, NMBI, SIPTU, PSI, and the HSE. Our discussions revealed that progress on micro-credential accreditation remains limited, with SETU and the Medical University of Lublin being the only institutions to secure accreditation during the project period. Participants highlighted the need for a clearer distinction between CPD activities and ECTS-bearing micro-credentials, with some partners emphasising that only Level 8 or higher micro-credentials would be considered suitable for nursing practice. Regulators acknowledged the attractiveness of smaller, flexible modules compared to larger certificates and agreed that digital competency micro-credentials could play an important role in maintaining professional registration across healthcare professions.

The key outcomes of these engagements include a shared recognition of the importance of micro-credentials, particularly in the field of digital competencies. There was consensus that a mandatory digital competency module would strengthen the professional development system and improve patient safety across healthcare professions. Regulators also acknowledged the need to provide clearer guidance on the role of micro-credentials, particularly in differentiating them from CPD. The next steps include sustained engagement with regulators to develop standards, the promotion of flexible Level 8+ micro-credentials, and the integration of digital literacy modules into CPD and accreditation structures. These outcomes will also feed into the wider dissemination process, including the DDS-MAP Brussels conference scheduled for June 2025.

The Irish engagements reinforced key lessons emerging across Europe regarding the implementation of micro-credentials in healthcare education. While Ireland has established CPD systems, its framework for accrediting micro-credentials remains fragmented and still in development. Nevertheless, the willingness of regulatory bodies to explore formal recognition highlights a strong potential for growth. Ireland's emphasis on digital skills and the proposal of a mandatory digital competency micro-credential reflects a wider European concern with resilience, cybersecurity, and technological transformation in healthcare.

6 Workshops and engagement activities in Italy

6.1 National Context

In Italy, healthcare professionals (e.g., physicians, nurses, pharmacists) are required to participate in the Educazione Continua in Medicina (ECM) program, which is the national system for Continuing Medical Education. ECM credits function as micro credentials but are not recognized at European level, certifying ongoing professional development. The system is coordinated by the National Agency for Regional Health Services (AGENAS) under the Ministry of Health, which accredits training providers and monitors compliance. Professionals must earn 150 ECM credits over a three-year cycle to maintain their licence to practice, with flexibility in distribution across the years. Credits can be obtained through courses, conferences, online learning, research, or teaching activities. Recognition pathways are relatively clear. ECM credits are standardised and tracked through a national online portal, and training activities must be delivered by accredited providers to count toward the mandatory requirement. Some prior learning or foreign credits can be recognized, but only if validated through official procedures with the relevant professional bodies and AGENAS.

6.2 Workshops and engagement activities

Several dissemination events were conducted at the University of Udine. These included seminars held within the Master's Degree Program in Nursing and Midwifery Sciences at University of Udine-Trieste, where the project's objectives, learning modules, and innovative training approach were presented to postgraduate students and faculty. Furthermore, structured meetings and consultations took place with the coordinator of the educational programs of the Bachelor's Degree in Physiotherapy, Midwifery, Laboratory Technology, Nursing, and Radiologic Technology. These sessions served as an opportunity to introduce the DDS-MAP platform and to discuss its integration into existing curricula.

Additionally, a seminar was held with nurse educators and academic staff from the healthcare programs, focusing on the pedagogical use of digital tools and the role of micro-credentials in supporting continuous professional development. In the context of doctoral education, the project was presented on two separate occasions during the regular meetings of the PhD Program in Clinical and Translational Medical Sciences, fostering dialogue with early-career

researchers and academic supervisors. The project also received international exposure through a presentation at the International Conference on Organizational Science Development: Human Being, Artificial Intelligence, and Organization in Portorož, Slovenia. This intervention highlighted the application of virtual reality as a tool for evaluating digital competencies in healthcare, emphasizing its potential for immersive and experiential learning.

Professional dissemination activities included engagements with the Italian Society for the Direction and Management of Nursing Professions (SIDMI) and Consociazione Nazionale Associazioni Infermieri (CNAI) - National Association of Nurses Associations, where project outcomes and the European framework for microcredentials were discussed with healthcare managers and policy stakeholders. Moreover, a poster presentation on healthcare professionals digital competencies was delivered at an event organised by Italian National Federation of Nursing Professions(FNOPI), further promoting awareness of the project among practitioners and regulatory bodies. Furthermore, dedicated dissemination sessions were held at the Nursing Council of Pordenone (Ordine delle Professioni Infermieristiche di Pordenone), involving local nursing professionals and healthcare educators. These events provided a valuable opportunity to present the DDS-MAP project directly to practitioners engaged in frontline care. Key topics discussed included the need for upskilling in digital health, the benefits of modular learning, and the potential role of digital platforms in supporting professional development. The sessions also fostered local engagement and reinforced the relevance of the DDS-MAP training approach in addressing the real-world challenges faced by nurses in their daily practice. Feedback collected from participants confirmed strong interest in the project's tools and highlighted the importance of continued investment in digital competency development at the territorial level.

The dissemination activities engaged a wide range of stakeholders, including healthcare professionals (nurses, midwives, physiotherapists, lab and radiology technicians), nurse educators, academic staff, students in undergraduate and postgraduate programs, doctoral candidates, and representatives of professional associations and regulatory authorities. These participants provided valuable insights into the practical challenges and educational needs related to digital transformation in the healthcare sector. Central themes discussed during the dissemination activities included continuous professional education, cybersecurity, and the well-being of healthcare workers, with a shared goal of enhancing the resilience of European healthcare systems. Particular attention was given to the presentation of a pan-European self-

assessment tool, designed to help social and healthcare personnel evaluate their levels of digitalisation, resilience, and sustainability readiness. The modular structure of the DDS-MAP training platform was explored in depth, with its content covering key areas such as digital skills, emerging healthcare challenges, technology integration in care delivery, and staff well-being. The development of a European framework for micro-credentials was also a focal point, emphasizing the recognition and validation of skills acquired through both formal and informal learning pathways.

Finally, discussions included the innovative use of augmented and virtual reality for competence assessment, supporting the transition towards immersive and personalized training experiences. These initiatives collectively contribute to the digital transformation of the European healthcare workforce, aligning with EU policy priorities and addressing the urgent need for upskilling and reskilling of professionals already active in the field.

6.3 Outcomes

In these exchanges, the issue of accreditation and recognition of micro-credentials was a key topic of interest. Stakeholders expressed a clear need for innovation in professional education and acknowledged the potential value of micro-credentials in supporting lifelong learning, digital upskilling, and flexible competence recognition. Nevertheless, discussions highlighted significant structural and regulatory challenges within the Italian context:

- **Absence of a National Framework:** Italy currently does not have an established system for the formal recognition of micro-credentials within higher education or continuing professional development pathways.
- **Need for National-Level Dialogue:** It was recognized that meaningful progress in this area would require structured engagement with national-level institutions, such as the Ministry of University and Research and relevant accreditation bodies. These entities are responsible for defining recognition standards and implementing systemic educational reforms.

While local institutions and professional organisations expressed interest in the DDS-MAP model, they also acknowledged the limited capacity to influence accreditation processes without clear national guidelines or policy frameworks. At this stage, no formal agreements or concrete steps toward recognition of DDS-MAP modules as accredited micro-credentials have

been achieved in Italy. The process remains in a preliminary and exploratory phase. Achieving formal recognition would necessitate engagement with higher-level authorities, which are currently not accessible within the scope and timeline of the project. Nonetheless, the discussions conducted have laid the groundwork for future advocacy and dialogue and have helped to raise awareness among educational institutions and professional associations regarding the importance of flexible learning pathways and the potential role of micro-credentials in advancing the digital transformation of the healthcare workforce.

The implementation of the ECM system has led to several important outcomes at the national level. Firstly, it has institutionalized a culture of continuous professional development across all healthcare professions. The standardization of credit tracking through a national portal has improved transparency and compliance monitoring. There is also growing awareness and discussion around the potential of micro credentials to expand the scope of recognized competencies beyond traditional learning formats.

While ECM credits serve as a form of micro-credentialing for healthcare professionals in Italy, there is no comprehensive national system that formally supports micro credentials beyond this context. Current limitations include restricted recognition of informal and international learning, administrative complexity, and a lack of integration with emerging skill areas. Future steps aim to enhance the flexibility and relevance of the ECM system by expanding validation pathways, integrating new fields such as telemedicine and AI, simplifying regional procedures, and improving quality assurance. At the same time, alignment with European initiatives could promote the broader adoption of micro-credentials as recognized, portable, and stackable learning units across the healthcare sector.

7 Workshops and engagement activities in Germany

7.1 National Context

The European initiative to promote microcredentials in Europe was integrated into the project “MODUS – Strengthening Mobility and Permeability: Recognition and Credit Transfer at Universities” by the German Federal Ministry of Education and Research (BMBF).

In a workshop experts formulated minimum requirements for future microcredentials in order to support the German Rectors' Conference at the national level in terms of quality-assured recognition and credit transfer of microcredentials. Possibilities for both internal (university) and external quality assurance were described. Continuing education modules developed from existing degree programs should be accredited through program accreditation or system accreditation. No clear recommendation was formulated by the EU or in Germany for other types of continuing education programs. It was pointed out that certifications in the extracurricular area are possible, but that internal quality assurance processes must be taken into account. A so-called “creative process” was recommended to universities and faculties as a way of offering continuing education modules while at the same time ensuring quality assurance.

7.2 Workshops and engagement activities

In Germany, we started with two online information meetings about the project, parallel through the online survey (WP4 October 2023 – January 2024). The participants were a mixed group of students, administrative staff, IT administrators and doctors. It became clear that there is a need to develop digital competencies in different professions.

This was followed by two online meetings with Charité and the University Hospital Halle about becoming an associated partner. Participants of the meeting: scientists. The development of digital competencies is being researched from different points of view. Exchanging different ideas and results is helpful to create new ideas. However, Charité and the University Hospital Halle supported the online survey but they were not interested in becoming an associated partner of the project without financial support.

After that we took part in the 11th European Conference on Positive Psychology, 10th – 13th July 2024 by a poster presentation (Title: Strong professional groups for digitalisation in healthcare) to share the project and trends of the survey analysing. About 1000 Participants included professionals from all around the world, including doctors, psychologists, economists, scientists, coaches and trainers, as well as other healthcare professionals. The conference was full of insights into the interplay between digital factors and personal experiences. We therefore decided to give these interrelationships more weight in the German communication.

We also took part in the 7. Clusterconference “Zukunft der Pflege” <https://www.cluster-zukunft-der-pflege.de/index.php/clusterkonferenz-2025/> from 11th and 12th March 2025 in Berlin via a oral presentation (Title: Vier Microcredentials zum berufsgruppenübergreifenden Aufbau grundlegender digitaler Kompetenzen im Gesundheitswesen).

Students and healthcare professionals take part in this conference. The Clusterconference shows that there is a lot of research in Germany about digital transformation (in nursing). The development of digital competencies is one of these research activities. The DDS-MAP modules have been approved. The very open-minded approach, taking into account further developments such as climate change, wars and unrest raises interested.

Further on we presented the project at the 5th Weimarer Gesundheitsgipfel, 06th of March 2025. Prof. Dr. Martina Hasseler talked about digital competences in her presentation (title: Standardisierte Pflegesprache – Eine notwendige Anforderlichkeit – wenn KI in Gesundheitsversorgung in Deutschland funktionieren soll.) We also gave the opportunity to test the VR headset. Participants include employers and regulators. VR is often seen as a learning experience in simulation situations. Whether to try it is an individual decision.

In addition, we presented the project and the opportunity to take part in the pilot in the Steuerkreis-Meeting Wolfsburg (Health Region Wolfsburg), 13th March 2025. The participants shared the information about the project with different facilities in the region. Emergency services, hospitals, etc. Some of them took part in the pilot.

Ostfalia also took part in the multiplier event in Croatia 14th of May 2025. Students and healthcare professionals listened to the project's various results. It became clear that there are many different understandings of microcredentials in case regulations varied.

The event also helps to give the Erasmus collaborations Ostfalia and Josipa Jura Strossmayer University of Osijek a deep dive. Further on Ostfalia and Klaipeda University Lithuania discuss an Erasmus collaboration as well.

On 23th of May 2025, Ostfalia also discussed VR possibilities at the Open Campus Day. Participants included students and healthcare professionals. Some people were very interested in trying the VR-headsets out. Others wanted more of a video to get an impression of the VR. Aside from VR, people were interested in the different partners of the project and experiences from the EU.

During the piloting phase, we offered three possible workshop days for participants to take part in, to exchange ideas and test the VR scenarios, but this was not requested. We shared our activities via Instagram and LinkedIn, as well as releasing a press statement through our university communications department. There was also a newspaper article and hints about the project from different publishers, which gave people the opportunity to interact.

7.3 Outcomes

In 2023 (at the start of the project), the Faculty of Health Sciences at Ostfalia University of Applied Sciences had developed various continuing education modules and MOOCs as part of various research projects, mostly within the framework of funding guidelines for “opening up universities,” and tested them in pilot phases. On this basis, a scientific continuing education centre was established within the faculty. Certificate examination regulations were also developed, which were to serve as a quality standard for the continuing education modules developed up to that point and regulate credit transfer. These had been approved by the relevant committees (study commission, examination board, faculty council, and presidium). There was no overarching regulation governing the offering of continuing education modules or certificate courses at Ostfalia University of Applied Sciences.

Due to personnel changes, scientific continuing education at the Faculty of Health Sciences was not offered for a period of time. After organisational issues had been resolved it was resumed. Various modules from established degree programs at the faculty were offered individually as continuing education courses. Participants received certificates of participation after completing the modules. It was possible to have these modules recognized for credit in a

later degree program. However, the MOOCs developed from the completed research projects were not implemented. Digital badges were not used as proof of learning.

The status of external participants in continuing education courses at the university was not regulated in terms of organisation. This made it difficult to access resources such as the Moodle learning platform. In WP 5 of the DDS-Map research project, an overview of the current status of the participating partner countries in the development of microcredentials was first obtained. Based on the documents provided, the commonalities were identified and a generally applicable framework and module descriptions for the DDS-MAP continuing education modules (central) to be developed for the DDS-MAP research project were elaborated.

In order to be able to offer the DDS-Map continuing education modules developed in the research project as microcredentials in Germany, a “creative process” was initiated at the Faculty of Health Sciences at Ostfalia University of Applied Sciences in line with the recommendations of the HRK. On the one hand, the project was presented to the study commission of the Faculty of Health Sciences and the necessary framework conditions were discussed. The idea arose to integrate the modules into the faculty's newly established scientific continuing education program. The faculty's rebuilding scientific continuing education program recommended that the module manuals developed for the DDS-MAP continuing education offerings be reviewed in accordance with the already developed certificate examination regulations in order to ensure a certain standard of quality.

In order to be able to adequately review the developed modules in accordance with the existing certificate examination regulations, the first draft of the developed DDS-Map modules was awaited so that an insight into the exact structure, content, and organisation of the modules could be guaranteed. The review was carried out parallel to the pilot phase. During the pilot phase of testing the DDS modules, participants received the Moodle badge created via the Moodle cloud as proof of completion. However, the Faculty of Health Sciences did not award any micro credentials.

The examination was conducted by the examination board of the Faculty of Health Sciences, which reviewed the proposed didactic framework conditions in parallel with the pilot phase. The review found that the module descriptions of the DDS-Map modules did not fully comply with the requirements of the Faculty of Health Sciences' certificate examination regulations:

Compliance:

- The intended scope of work can be credited with 2.5 ECTS.
- The type of examination must correspond to one of the types of examination described in the certificate examination regulations PO of the Faculty of Health Sciences
- The examination content must be further specified
- The assessment criteria do not correspond to the assessment classification of the existing certificate examination regulations PO of the Faculty of Health Sciences
- The admission requirements are described differently in the existing certificate examination regulations PO than in the European project.
- The modules would have to be added to Appendix 4 (module contents of continuing education programs developed before 2023).

As an alternative, three possible options were explored for creating a quality assurance process for the DDS-Map continuing education modules.

1. The existing certificate examination regulations would have to be adapted and revised in accordance with the feedback from the examination board of the Faculty of Health Sciences
2. A separate certificate examination regulation would have to be developed explicitly for the DDS-MAP continuing education modules
3. The newly structured scientific continuing education program of the Faculty of Health Sciences had begun in parallel to develop a handbook for future continuing education modules to be offered through the faculty's scientific continuing education program. It would be possible to create the framework for the DDS-MAP continuing education modules within this development process.

Option 1 was rejected because the certificate examination regulations referred to past research projects and continuing education modules. It was decided to pursue a future-oriented development. Based on the pilot phase of the project, both options 2 and 3 were pursued. In addition to the pre- and post-tests already integrated into the modules, organisational feedback was obtained on whether the content aroused the interest of German healthcare professionals and whether the content and presentation were accepted. The potential for making the modules permanent was explored.

At the same time, the faculty was informed that the legal framework for external participants in continuing education programs at the university level had been established, thus enabling access to additional university resources.

8 Workshops and engagement activities in Lithuania

8.1 National Context

In Lithuania, the concept of micro-credentials has gained increasing attention over the past few years, especially in the context of digital transformation and lifelong learning. While there is growing awareness of their potential, micro-credentials are not yet formally integrated into national legislation or higher education policy in a systematic way. In 2022, Lithuania introduced a National Microcredentials Framework aligned with European Commission recommendations, marking a significant first step toward formalisation. However, despite this framework, micro-credentials remain largely informal in practice and are not yet fully embedded within the Lithuanian Qualifications Framework (LTQF).

Currently, higher education institutions have the autonomy to offer microcredentials as part of their continuing professional development (CPD) or non-degree programmes. These short-form learning opportunities often come in the form of modular courses, workshops, or digital learning experiences, and may carry institutional recognition. However, there is no unified national approach to accrediting these credentials or awarding European Credit Transfer and Accumulation System (ECTS) points, which limits their portability across institutions or borders.

The lack of a clear, standardised recognition pathway presents a significant challenge. While some universities—such as Klaipėda University, Kaunas University of Technology, and the Lithuanian University of Health Sciences—have taken proactive steps to explore micro-credentials in specific domains (notably digital health and green economy sectors), they are doing so in the absence of a national accreditation mechanism. As a result, each institution must rely on internal validation processes without external quality assurance or guarantees of broader recognition.

Despite these challenges, there are promising opportunities. Lithuania's efforts are well aligned with European strategies on micro-credentials, particularly the Council Recommendation adopted in 2022. This alignment opens the door for future integration into EU-wide initiatives such as the European Digital Credentials for Learning infrastructure. There

is also growing institutional interest in using micro-credentials to support sector-specific upskilling, especially in healthcare, where flexible and modular learning formats can help professionals rapidly adapt to evolving digital tools and patient care models.

Nonetheless, several barriers remain. The absence of formal legal definitions for micro-credentials complicates national implementation. Varying interpretations of what constitutes a micro-credential—from short MOOCs to simulation-based modules—can lead to confusion among educators, employers, and regulators. Additionally, the lack of a national quality assurance framework specific to micro-credentials raises questions about consistency, reliability, and transparency. Without a central registry or standardised system for credit allocation, learners face difficulties in transferring and stacking credentials across different providers.

In summary, while Lithuania is moving in the right direction by establishing a foundation for micro-credential development, substantial work remains to be done to create clear pathways for their recognition and integration into the national education and qualifications system. With continued policy development and alignment with EU digital education initiatives, micro-credentials have strong potential to become a key component of Lithuania's future learning landscape.

8.2 Workshops and engagement activities

A regional workshop was organised by Klaipeda University as part of the DDS-MAP project to initiate national-level cooperation on training module accreditation. The event included presentations, stakeholder consultations, and a round-table discussion on certification pathways. Breakout sessions were also held for gathering feedback and planning pilot implementation of DDS-MAP materials.

The workshop brought together key stakeholder groups including: healthcare professionals (clinical educators, hospital staff), university staff and researchers involved in health education, students from nursing and allied health programmes, regulators and public sector health administrators. The main topics discussed included:

- Overview of DDS-MAP training modules and digital tools (including AR/VR environments)

- Required digital skills for healthcare professionals and how to integrate them into training
- Structure and recognition of micro-credentials
- Accreditation strategies for DDS-MAP modules within the national qualification framework
- Steps toward local implementation

8.3 Outcomes

As part of the Lithuanian regional workshop for the DDS-MAP project, Klaipėda University led focused discussions on the accreditation and recognition of the project's training modules. These discussions brought together key national stakeholders, including representatives from the Ministry of Education, Science and Sport, senior academic staff from Klaipėda University, and invited experts from affiliated clinical training hospitals and associations.

The conversation centred on how the DDS-MAP modules—particularly those built around microcredentials and digital simulation tools—could be aligned with the Lithuanian Qualifications Framework (LTK) and existing mechanisms for continuing professional development (CPD) for healthcare professionals. Stakeholders highlighted the importance of ensuring quality assurance, learning outcome clarity, and integration with national educational standards.

Special attention was given to the modular and flexible structure of DDS-MAP training materials, which are designed to support both initial education and lifelong learning. Participants acknowledged the potential of micro-credentials to meet the needs of upskilling in the healthcare sector but also discussed the procedural and regulatory steps required for formal recognition in Lithuania. The use of AR/VR-supported modules was noted as a particularly innovative element, raising interest but also the need for pedagogical and technical validation within regulated programmes.

Klaipėda University presented the results of internal validation process and integration of DDS-MAP modules into the institutional curriculum and microcredential catalogue. Plans were also made to continue the dialogue through follow-up meetings, with a view to linking DDS-MAP outputs to broader national strategies for digital skills development in the health sector.

At the conclusion of the workshop, several key outcomes emerged from the national engagements that promise to shape the future of DDS-MAP module accreditation in Lithuania. First and foremost, there was broad consensus among participants—including university staff, healthcare professionals, and regulators—that the modular training approach, anchored by microcredentials, offers a flexible and innovative solution to ongoing skills and digital competence gaps in the healthcare sector. This recognition is significant, as it validates the practical potential of micro-credential pathways even in the absence of a fully formalised national framework.

Participants agreed that adopting the DDS-MAP modules as part of continuing professional development (CPD) could improve the alignment of digital skill training with both sector-specific needs and broader educational standards. An internal validation process was endorsed by academic stakeholders from Klaipėda University, ensuring that these modules would be rigorously evaluated.

Looking ahead, next steps are clearly mapped out to advance both the accreditation and recognition of DDS-MAP outputs. Follow-up meetings are scheduled to refine the accreditation process and to tailor the modules to meet national quality standards and criteria. There is also a commitment to explore ways of integrating the new digital and modular learning approaches into existing lifelong learning frameworks, ensuring that they are closely aligned with the national qualifications structure.

These steps not only aim to establish a formalised pathway for recognition but also set the stage for wider dissemination and refinement of the DDS-MAP. In summary, the workshop has laid a robust foundation for regulatory dialogue, paving the way for a sustainable model of accreditation that can accommodate emerging digital competencies within Lithuania's healthcare education landscape.

9 Workshops and engagement activities in Latvia

9.1 National Context

In Latvia, the development of micro-credentials is currently undergoing a dynamic and evolving process. While micro-credentials are not yet fully embedded within the national qualifications framework, several targeted pilot initiatives are in progress to explore their integration into the higher education system. A key step in this direction is the Micro-credential Pilot Project in Universities of Applied Sciences, Universities of Arts and Culture, and Colleges Established by State Universities, coordinated by the Ministry of Education and Science in collaboration with Vidzeme University of Applied Sciences. The project aims to design and deliver short-cycle professional development programmes aligned with levels 5, 6, and 7 of professional qualifications, in accordance with the Professional Education Law. Following the implementation of this pilot, an analysis of best practices—including relevant international experience—will be carried out. The project will also compile and evaluate the experiences of participating institutions in programme design and delivery, leading to the development of concrete recommendations for improving regulatory frameworks and implementation processes related to micro-credentials in Latvia.

9.2 Workshops and engagement activities

On June 17–18, Riga hosted the interim meeting of the EU4Health project DDS-MAP, welcoming participants from Ireland, Lithuania, Slovenia, Belgium, Germany, Spain, Poland, Italy, and Croatia. A representative from the European Commission’s supervisory institution also joined the meeting online. During the meeting, the project partners agreed on the next steps for developing project outcomes, finalised the content of the digital health modules, and discussed the dissemination plan and the structure of the interim report. On the second day, a dissemination event took place, featuring an introduction to the project, the content of the training modules, and virtual reality tools. International partners also gave presentations on digital competencies in the healthcare sector.

During the project period national stakeholder engagement activities were organised including workshops and consultations with healthcare representatives. These involved personnel from major hospitals in Latvia in order to present project training content

and tools and validate the relevance and practical application of the proposed digital skills modules in clinical settings.

Additionally, representatives from the Latvian Association of Nurses and the Latvian Council of Pharmacists actively participated in the discussions, offering perspectives on how digital competencies align with the professional development needs of nurses and pharmacists. Stakeholders emphasized the need for flexibility and adaptability in module design to address the diverse professional needs across various healthcare disciplines. The importance of continuous dialogue with regulatory bodies and educational institutions was also underscored to ensure alignment with national standards and professional requirements.

9.3 Outcomes

In the context of the accreditation and recognition of DDS-MAP modules, the RSU team engaged in consultations with Vidzeme University of Applied Sciences, which is currently leading the national micro-credential pilot project in Latvia in collaboration with the Ministry of Education and Science. This initiative includes the development of methodological guidelines for implementing professional development programmes and provides structured support to participating institutions for the design and implementation of micro-credential projects.

The discussions focused on creating a common understanding of micro-credentials in the Latvian higher education system and defining the foundational principles for this new study format. Emphasis was placed on aligning the structure and outcomes of micro-credential modules with national qualification levels and labour market needs. The need for clear quality assurance mechanisms and recognition procedures was also highlighted.

Latvian representatives from the DDS-MAP project participated in a national stakeholder event organised by Vidzeme University of Applied Sciences on January 30, 2025, bringing together more than 40 experts from the education sector, including representatives from the Ministry of Education and Science, universities, and colleges. The goal was to jointly shape the strategic framework for micro-credentials in Latvia.

Further progress was made on June 17, 2025, when we took part in a follow-up meeting to present key insights and results from the DDS-MAP project. The discussion focused on how the lessons learned from the project could be integrated into the ongoing national pilot project *“Micro-credential pilot project in universities of applied sciences, universities of arts and culture, and colleges established by state universities.”*

These engagements represent an important step toward aligning the DDS-MAP project results with the emerging national standards for micro-credentials and reflect a growing commitment to embedding digital skills development in both formal education and lifelong learning pathways within the health sector.

Currently, Latvia does not yet have a fully established or legally codified system for the formal recognition of micro-credentials. However, important foundational steps are being taken. Several higher education institutions (HEIs) are already offering adult education programmes that partially align with the emerging concept of micro-credentials. These programmes typically feature clearly defined learning outcomes, may award credit points, and are supported by internal quality assurance mechanisms. Despite this progress, a significant challenge remains: the lack of unified quality standards and transparent recognition procedures at the national level.

It is expected that the Micro-credential Pilot Project, coordinated by Vidzeme University of Applied Sciences, will address these gaps. The project aims to develop a comprehensive framework and formulate concrete recommendations to the Ministry of Education and Science for establishing a more robust and formalised system for the implementation, accreditation, and recognition of micro-credentials in Latvia.

Building on the experience gained through the DDS-MAP (Dynamic Digital Skills for Medical and Allied Professions in Health Services) project, the RSU team together with Red Cross Medical College of Riga Stradinš University is planning to participate in the national micro-credential pilot project launched by Vidzeme University of Applied Sciences. This initiative aims to support the development and implementation of training programmes aligned with professional qualification levels 5, 6, and 7.

One of the key outcomes of this engagement is the opportunity to strengthen institutional capacity to better respond to labour market needs and the expectations of adult learners. The pilot provides not only financial support (up to EUR 31,500 per project, with a 10% co-financing requirement), but also offers a national platform for mapping the current regulatory framework for continuing professional development, assessing recognition practices across higher education institutions, and fostering cross-sector collaboration.

Additionally, the pilot includes practical training elements, such as work-based learning and international expert involvement, and is expected to result in the development of methodological guidelines for the implementation of professional development programmes. These efforts contribute to a more harmonised and transparent approach to lifelong learning in Latvia.

Although the micro-credential pilot allows only individual study courses or parts thereof from accredited study programmes to be submitted, the full DDS-MAP modules cannot be directly transferred into the initiative in their current format. Nevertheless, the RSU team is actively developing a new Digital Health project, specifically tailored for submission to the pilot programme implemented by Vidzeme University of Applied Sciences, in which RSU intends to participate. The new project will incorporate selected content areas from the DDS-MAP modules and will serve as a test case for integrating digitally focused professional development into higher education.

Within the framework of this national pilot, led by Vidzeme University of Applied Sciences, significant activities are planned to support the advancement of accreditation and recognition processes. The pilot will introduce structured training activities for participants, feature practical work-based learning experiences with employer collaboration, and engage international experts in content delivery. These efforts will help test and refine approaches for micro-credential implementation in real educational settings.

10 Workshops and engagement activities in Croatia

10.1 National context

Micro-credentials offer a flexible way to address specific skills and market needs in Croatia. The focus and challenges are integrating these credentials into higher education and the Croatian Qualification Framework (CROQF). Micro-credentials need to be aligned with the national qualifications framework and ECTS credits, with clearly defined learning outcomes and quality assurance based on European standards and Guidelines (ESG). Some of the main challenges for microcredentials in Croatia until 2023 were lack of formal recognition mechanisms for micro-credentials within national legislation, need for standardised quality assurance processes and difficulties with integrating micro-credentials into existing degree programs and higher education structures.

In March of 2023, a workshop called *Connecting Micro-qualifications in Higher Education with the Croatian Qualifications Framework (CROQF)*. The Ministry of Science and Education presented Instructions for creating, harmonizing and approving educational programs of higher education institutions at the level of higher education. The instruction referred to the preparation, harmonization and approval of educational programs of higher education institutions:

- at the level of higher education
- which are based on the principles of lifelong learning,
- which are in accordance with the standards of the sets of learning outcomes registered in Register of the Croatian Qualification Framework (CROQF).

The aim was to encourage to harmonize higher education programs with CROQF standards.

The contents of instructions were:

- prescribes mandatory parts of the procedure, but not the entire procedure
- respects the autonomy of universities and the academic self-governance of higher education institutions
- stipulates that the higher education institution will prescribe the method of preparation and evaluation in an internal act and harmonization of educational programs with the CQF Register

- ensuring alignment of the program with the sets of learning outcomes enrolled in Register of CROQF
 - "quality guarantee" to employers (compliance with professional competences)
- greater recognition on the labour market

The University develops the program through an internal procedure. The program is adopted by the decision of the university senate, i.e. by the decision of the council of the polytechnic, which confirms its compliance with the set or sets of outcomes registered in the HKO Register. The decision together with the Form for creating a harmonized educational program with the standards of sets of learning outcomes, submitted to the Agency for Science and Higher Education (ASHE) in order to register the program in the CROQF Register.

The Agency for Science and Higher Education (ASHE) determines whether the educational program was created in accordance with the Instruction if so: enter basic information about the program in the CROQF Register and issue it to the higher education institution to the university, the Certificate of registration of the educational program in the HKO Register. If the program is not prepared in accordance with the Instruction, AZVO will invite the higher education institution to amend it and/or supplementing the educational program.

Micro-credentials offer Croatia a valuable opportunity to modernize higher education and align it with labour market demands. To fully realize their potential, Croatia has addressed challenges related to recognition, quality assurance, and integration into the national framework. With the right policies and support, micro-credentials can significantly enhance the Croatian education system.

10.2 Workshops and engagement activities

On Tuesday, May 9, 2023, the Faculty of Dental Medicine and Health Osijek hosted the official presentation of the international project *The Dynamic Digital Skills for Agility and Resilience in Medical and Allied Professions (DDS-MAP)*. The DDS-MAP project brings together a consortium of higher education institutions, NGOs, healthcare bodies, and insurers to develop new learning modules that support digital upskilling in line with the *Pact for Skills (2020)*. The aim is to foster a learning ecosystem that equips professionals for emerging digital technologies and challenges in healthcare.

The presentation was attended by students, university faculty, and interested stakeholders from healthcare institutions that collaborate with the Faculty. Project objectives and expected outcomes were presented by project leaders: Prof. John Wells (SETU, Ireland), Prof. Majda Pajnkihar (University of Maribor), and Prof. Martina Smolić (University of Osijek).

On Wednesday, April 24, 2024, the Faculty of Dental Medicine and Health Osijek organised an Info day of EU projects of the FDMZ, during which 4 projects of the Faculty, whose implementation is underway, including DDS-MAP. We organised this event to show other teachers and interested stakeholders as members of affiliated hospitals who may not yet be into writing project proposals, which are really administratively demanding, that it is possible. Our projects are different in nature, considering that we train future doctors of dentistry, but also master nurses and physiotherapists. So we have two projects that deal with radiation protection, a project to develop a platform that ensures the digital competence of all stakeholders in healthcare, which involves 10 countries and 15 partner institutions and is worth 2.4 million euros, and there is also a project to develop a platform for the training of nurses in oncology care at the undergraduate level - emphasized Professor Martina Smolić, M.D., Ph.D., Vice Dean for Science and Postgraduate Studies at the Faculty of Dental Medicine and Health Osijek.

On Wednesday, May 14, 2025, the Faculty of Dental Medicine and Health Osijek hosted a multiplier event as part of the European DDS-MAP project (Dynamic Digital Skills for Medical and Allied Professions), funded through the EU4Health program. The event brought together numerous participants from academia, the healthcare sector such as members of affiliated hospitals, doctors, nurses, physical therapists and dental medicine doctors and technicians and international project partners. The event aimed to present the project's key outcomes and activities and provide a platform for the exchange of knowledge, experiences, and ideas among experts in medicine, dental medicine, public health, health informatics, and education.

The opening session featured remarks by Prof. Aleksandar Včev, MD, PhD, Dean of the Faculty, and Prof. Martina Smolić, MD, PhD, Vice Dean for Science and Postgraduate Studies. Project partners involved in the development and implementation of project activities held presentations, panel discussions, and interactive workshops on the topic of digital transformation in healthcare and education, with a special focus on the use of innovative tools and approaches in the professional development of healthcare workers.

Prof. John Wells, PhD, DDS-MAP Project Lead, and Florian Scheibein, MSc, from South East Technological University in Ireland, along with Prof. Martina Smolić, MD, PhD, provided an overview of the project's results to date. The Italian team from the University of Udine—Gaia Dussi, PhD, Gaia Magro, PhD, Stefania Chiappinotto, PhD, Sara Dentice, PhD, Chiara Moreal, PhD, Assoc. prof. Alessandro Galazzi, PhD, Prof. Alvisa Palese, PhD, and Laura Tonzar, PhD—delivered a highly engaging lecture titled *“Massive Open Online Courses (MOOCs) for Health Professionals: What Can We Find in the Literature?”*

Stephanie Krebs, MSc, from the University of Applied Sciences in Wolfsburg, Germany, presented *“Four Micro-Credentials for Cross-Occupational Expansion of Basic Digital Skills in the Health Service,”* while Ana Petrović, MD, and Prof. Robert Smolić, MD, PhD, from our Faculty delivered a talk on *“Digital Competence and Cybersecurity in Croatian Healthcare Professionals.”*

Following this, Prof. Beata Dobrowolska, PhD, Assist. prof. Kinga Zdunek, PhD, and Magdalena Dziurka, MSN, from the Medical University of Lublin in Poland gave two insightful lectures titled *“Microcredentials as a Contemporary Method of Learning Results Recognition – the European and Polish Perspectives”* and *“Implementation of DDS-MAP Modules: Facilitator Experience,”* which were seamlessly followed by a lecture from Assist. prof. Ivana Barać, PhD, and Jasenka Vujanić, PhD, from our Faculty: *“How to Deal with the Challenges and Opportunities of Remote Work and Hybrid Work Models?”*

The dissemination event concluded with a discussion and networking session among project partners, following the closing lecture *“Healthcare Challenges in Europe in the Next 10–20 Years,”* presented by Prof. John Wells, PhD, and Florian Scheibein, MSc. The event successfully achieved its main goal of establishing a platform to strengthen cooperation between external stakeholders and the Faculty's teachers and students, while promoting the importance of digital literacy in the modern healthcare system.

10.3 Outcomes

The Faculty engaged in preliminary discussions with the University of Osijek, specifically with the University Committee for Study Programmes and Lifelong Learning. Additionally, internal consultations were held with the Faculty Council and the Lifelong Learning Committee of our institution.

Key points raised in these discussions:

- The importance of aligning newly developed digital content with the existing study programmes and national qualification standards was highlighted.
- There was general openness to considering the integration of DDS-MAP modules into elective or supplemental learning formats, provided they meet institutional and formal academic criteria.
- It was acknowledged that modular digital learning could contribute to strengthening students' and professionals' digital competencies, especially in the context of broader healthcare system needs.
- The potential for offering some of the content through lifelong learning channels was also mentioned, but further analysis is needed.

Following these discussions, there was a general expression of support for further exploring the potential integration of DDS-MAP modules within existing academic and lifelong learning frameworks. While no formal proposals have been submitted at this stage, there is an intention to internally review the content of selected modules and assess their alignment with current curricula. Depending on the outcomes of this review, the Faculty may consider initiating the process of proposing one or more modules for future implementation, either as elective content or within professional development formats.

As a project partner, the Faculty of Dental Medicine and Health Osijek has achieved several important outcomes through participation in DDS-MAP. Firstly, we have contributed to the development of digital skills modules tailored to the needs of health professionals, with a specific focus on nursing, physiotherapy, and dental medicine — our core academic areas. Secondly, involvement in this international consortium has significantly enhanced our institutional expertise in digital pedagogy and curriculum innovation.



National engagement activities, including the project launch event in Osijek, have strengthened our collaboration with local healthcare institutions, many of which are teaching bases for our students. These partnerships ensure that the project outcomes are aligned with national healthcare priorities and directly applicable in clinical settings. Additionally, our academic staff and students have gained access to cutting-edge digital training materials, fostering early adoption of digital tools and resilience in healthcare delivery.

One of the key next steps for our institution is to integrate the developed digital modules into elective courses and lifelong learning programmes offered at our faculty. We are currently reviewing the content in relation to national qualification standards in nursing and allied health professions, with the aim of submitting proposals for module accreditation. Parallel to this, we will pilot selected modules in collaboration with our clinical partners and gather structured feedback from students and professionals to support continuous improvement and formal recognition. Long-term, we intend to promote the integration of these modules as micro-credentials or ECTS-recognised units within postgraduate and professional development pathways.



11 DDS-MAP Final Conference

Introduction

The DDS-MAP Final European Conference took place on 26 June 2025 in Brussels, bringing together healthcare professionals, policymakers, academics, and civil society representatives to reflect on the project's achievements and explore the future of digital skills in healthcare. Set against the backdrop of a rapidly changing world marked by global health crises, climate change, and technological transformation, the conference highlighted the urgent need to strengthen the digital readiness of Europe's health workforce.

Building on two years of project activities, the event showcased self-assessment tools for digital literacy and resilience, presented resources designed for healthcare and allied professionals, and demonstrated the use of Virtual and Augmented Reality technologies in training. It also provided a platform to debate skill recognition pathways, such as micro-credentials, and to discuss how Europe can better equip medical and allied staff for the challenges ahead. With contributions from the European Commission, leading universities, and professional associations, the conference served both as a culmination of DDS-MAP's work and as a forward-looking dialogue on shaping a digitally skilled and resilient health sector across Europe.

The conference was organised in a hybrid format, combining both in-person and online participation. This approach was chosen to maximise accessibility and engagement of the project's diverse target groups, including healthcare professionals, policymakers, educators, and researchers from across Europe. By offering a virtual option alongside the physical event in Brussels, the conference ensured broader participation, reduced travel barriers, and allowed stakeholders from different countries and contexts to actively contribute to the discussions and knowledge sharing.

Initial Planning

Conference venue

Located in the central of Brussels, Guimard Square is an eco-friendly meeting venue and ideal starting point for both business and conferences. Most of the EU institutions are within easy

walking distance and the historical city centre is just a stone's throw away. The conference was hosted on the ground floor of the venue ensuring the accessibility for person with disability such as wheelchair accessibility, accessible toilet, reserved parking for disabled person etc.

2.1. Agenda

Time	Session	Speakers / Moderators
08:45	Registrations	–
09:30– 09:45	Welcoming Remarks	Prof. John Wells (SETU), Thomas Bignal (EASPD)
09:45– 10:15	Policy Keynote	Dr. Petronille Bogaert (European Commission, DG SANTE)
10:15– 11:30	Panel Discussion: <i>Future of Digital Skills in European Healthcare</i>	Moderator: Prof. John Wells (SETU); Speakers: Federica Margheri (EHMA), C.- Andreas Dalluege (IBK), Prof. Dominika Vrbnjak (Univ. of Maribor)
11:30– 12:00	Open Q&A	Audience
12:00– 13:30	VR Demonstration & Buffet Lunch	Ground Floor Foyer
14:00– 15:00	Workshop: <i>Pan-European Micro-Credentials Framework</i>	Moderator: Prof. Beata Dobrowolska (Univ. of Lublin); Speakers: Dr. Helen Murphy (SETU), Dr. Adriano Friganovic (ENSO), Prof. Fiona Timmins (UCD), Prof. Dr. Martina Smolic (Univ. of Osijek)
15:00– 15:30	Lessons Learned & What's Next! (Open Mic)	Moderator: Prof. John Wells (SETU)
16:00	End of Conference	–
18:00– 19:30	Guided Walking Tour (DDS-MAP Partners only)	Brussels City
19:30– 21:00	Networking Dinner (DDS-MAP Partners only)	Bouillon Bruxelles

Accessibility measures

To ensure the DDS-MAP Final Conference was inclusive and accessible for persons with disabilities, several measures were implemented. The venue in Brussels was fully wheelchair accessible, with step-free entry and accessible restrooms available on site. Live streaming of the conference was provided during keynote speeches and panel sessions to support participants who joined online, while presentation materials were shared in advance in accessible digital formats. Efforts were also made to ensure clear visual design in slides and handouts, and facilitators were briefed on inclusive communication practices. These measures reflected the project's commitment to equal participation and accessibility for all attendees.

Pre-registration and participants profile

The DDS-MAP Final Conference brought together a total of 151 participants representing diverse professional backgrounds and organisations. Among them, 40 participants joined in person in Brussels, while a much larger group of 111 participants took part online, reflecting the inclusive and hybrid format of the event. In terms of gender balance, the majority of attendees identified as female (112), with 24 male participants and a small number preferring not to specify. Overall, the conference succeeded in attracting a wide range of stakeholders from across Europe, ensuring strong engagement and broad representation in the discussions.

Pre-conference promotion campaign

In the lead-up to the DDS-MAP Final Conference, a targeted pre-conference campaign was carried out to maximise outreach and engagement. Email marketing was used to send bulk invitations and updates to professional networks, associations, and students, ensuring wide visibility across stakeholder groups. Regular social media campaigns supported the promotion with scheduled posts highlighting the agenda, speaker announcements, and key themes of the event. In addition, a short article was published in partner newsletters, providing another channel to reach healthcare professionals, policymakers, and academic audiences. These combined efforts played an important role in generating strong interest and participation in the conference.

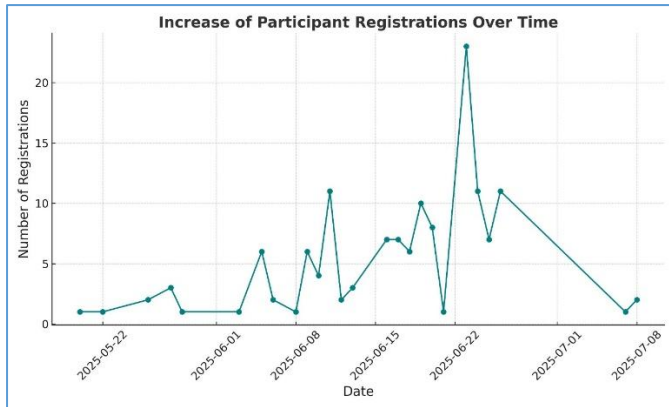


Figure 1: Participants registration timeline volume

Key Conclusion of the Event

Key Takeaways from the Opening Remarks

1. *Timely and Relevant Mission:* DDS-MAP was conceived during a time of crisis (e.g. Ukraine war, post-COVID), and its focus on digital skills has become more relevant as health systems face increasing pressure globally.
2. *Inclusion Across the Care Spectrum:* The project deliberately extended digital training not just to clinical professionals, but also to allied professionals such as social care workers, nurses, and administrative staff—promoting inclusive capacity building.
3. *Commitment to Lifelong Digital Learning:* The importance of continuous professional development was underscored, with calls for stronger investment in long-term digital skill-building initiatives that extend beyond the life of the DDS-MAP project.

Key Takeaways from the policy keynote:

1. Health Workforce Challenges Are Growing – and Central to EU Policy

The European Commission recognizes the health workforce as a foundational pillar for achieving a resilient, competitive, and equitable health system. Alarming statistics were shared:

- A shortage of 1.2 million doctors, nurses, and midwives across the EU (2022).
- Over one-third of doctors are over 55, signalling an upcoming wave of retirements.
- High levels of burnout and job strain, especially in nursing and long-term care, are driving talent away from the sector.

Policy implication: The EU is pushing Member States to strengthen workforce planning, improve working conditions, and invest in retention strategies, especially for nurses and rural regions.

2. Digital Transformation Is Not Optional – It’s Urgent and Inclusive

The digitalisation of health and care services is seen as a necessity, not a luxury. The DDS-MAP project was praised for its inclusive approach, offering digital training not only for medical professionals, allied health professionals and non-clinical workers.

Dr. Bogaert emphasized that:

- Technology should augment healthcare, not replace human workers.
- Digital and data literacy, cybersecurity, and telemedicine skills are increasingly critical across all roles.
- Digital training should align with privacy standards and ethical data use to maintain patient trust.

Policy implication: The EU is embedding digital upskilling in strategic initiatives like the European Health Data Space, Pact for Skills, and BeWell Blueprint.

3. Lifelong Learning & Flexible Training Are Core to the EU Skills Agenda

The keynote underscored the importance of continuous professional development (CPD) in a rapidly changing health landscape. Through funding programs like EU4Health, the Commission is supporting modular, flexible training that includes:

- Micro-credentials for digital health skills
- CPD tailored to healthcare professionals and non-clinical staff
- Online learning platforms that encourage cross-sector knowledge sharing

Policy implication: The EU is moving toward a “Union of Skills” , with new initiatives promoting mobility, recognition of qualifications, and targeted training to address skill gaps in both digital and green transitions.

Key Takeaways: Panel on the Future of Digital Skills in European Healthcare

Cybersecurity and Data Protection Are Top Priorities

The panel stressed the urgent need to strengthen digital literacy in areas like cybersecurity, especially due to the increasing threat of phishing and data breaches. Protecting patient data must be at the core of all digital skills training across healthcare systems.

Digital Skills Must Be Integrated into Continuous Professional Development (CPD)

The panel emphasized embedding digital competencies, such as the use of clinical digital tools and data management, within existing professional development frameworks. This includes issuing micro-credentials and aligning them with national and EU qualification standards.

Pan-European Standards and Joint Regulation Needed

To avoid fragmentation across Member States, the panel called for the creation of a Pan-European framework for digital healthcare training, harmonized across national systems. This includes standardizing curricula, enhancing collaboration, and aligning with initiatives like BeWell, EU4Health, and the Union of Skills.

Digital Skills Gap Worsens with ageing

A concerning trend noted was that younger healthcare professionals (e.g. undergraduates) tend to have stronger digital competencies, which diminish as staff progress in their careers. Lifelong learning and tailored training for senior professionals were identified as critical needs.

Flexible Learning and Micro-Credentials Are the Way Forward: The discussion highlighted the importance of short, ECTS-based courses and modular learning paths to support working professionals. These allow healthcare staff to upskill while managing demanding workloads.

AI and Leadership Will Transform Healthcare Roles: Panelists acknowledged that automation and AI will take over many operational tasks in healthcare management. As a result, future leadership will depend more on strategic vision and interpersonal communication—soft skills must be part of the digital education agenda.

Key Takeaways from the Workshop: Pan-European Micro-Credentials Framework

Standardisation and Policy Alignment Are Essential:

Micro-credentials must be integrated into national and European qualification frameworks, with strong alignment to the European Credit Transfer System (ECTS). Stakeholders emphasized the need for recognition by regulatory bodies, such as nursing councils, which often only accept qualifications at Level 8 or above.

Micro-Credentials Must Be Verifiable, Portable, and Stackable

Micro-credentials should be digitally certified, allowing professionals to add them to CVs and CPD portfolios. These short, modular learning units can be “stacked” to build larger qualifications, enabling flexible upskilling and lifelong learning for health professionals across the EU.

Urgent Need for Cross-Border Collaboration and Quality Assurance:

There are major disparities among EU countries in micro-credential recognition and implementation. The workshop highlighted the lack of consistency across regulatory systems and called for a Pan-European framework with clear quality standards, digital competencies focus (e.g., cybersecurity), and shared accreditation practices

Lessons Learned - Reflections from DDS-MAP Final Conference

Need for Better Inclusion of Non-Clinical Staff: A key insight was that many support staff—such as porters, technicians, and secretaries—are still underrepresented in digital skills initiatives, despite their daily interaction with healthcare systems. There is a need to engage and encourage these professionals in digital upskilling.

Disconnect Among Regulators Across Europe: One surprising takeaway was the limited communication and coordination between regulatory bodies within and across EU countries. This fragmentation presents a major barrier to standardising digital health training and recognition.

Co-Design and One-Size-Fits-All Limitations: Partners stressed that "one size does not fit all." Successful digital training must be co-designed with targeted stakeholder groups, tailored to their specific roles and learning contexts. Early and inclusive collaboration could have avoided duplications and confusion during the project's early stages.

Post project dissemination

To extend the impact of the DDS-MAP Final Conference beyond the event itself, a series of dissemination activities were undertaken:

- *Social Media:* Highlights, photos, and key messages from the conference were shared across project and partner social media platforms, ensuring wide visibility and continued engagement with stakeholders.
- *Electronic and Print Media:* A comprehensive press release was issued and circulated through electronic and print media channels, reaching a broader audience and reinforcing the relevance of the project outcomes.
- *Newsletter:* A dedicated feature article was included in partner newsletters, providing a concise summary of the event's achievements and insights for distribution within professional networks.
- *Website Content:* The conference proceedings, including the livestream recording, presentations, and supporting materials, were published on the DDS-MAP website, creating an accessible resource hub for professionals and organisations interested in digital skills development in healthcare.

These post-conference actions ensured that the project's messages, outcomes, and resources continued to reach diverse audiences, contributing to sustained awareness and impact.

12 Conclusion

The DDS-MAP consultative workshops and final multiplier event have shown the power of stakeholder engagement in embedding digital skills and micro-credentials into healthcare education and professional development. National workshops provided spaces for co-design with stakeholder groups ensuring that the project’s outputs reflected both diverse local contexts and common European priorities. The Brussels multiplier event consolidated these insights at the European level, providing a platform for dialogue, showcasing DDS-MAP’s innovative modules—including VR and AR tools—and situating the project within wider EU agendas on resilience, digital transformation, and lifelong learning. These activities have validated DDS-MAP’s approach, strengthened partnerships across education, healthcare, and policy, and positioned the project as a reference point in the development of flexible, practice-oriented digital learning resources. In order to ensure long term sustainability:

- Partner institutions will embed DDS-MAP modules into curricula and CPD frameworks at EQF levels 6–7 (Bachelor to Master’s level).
- All module content will be made open access for reuse and adaptation, ensuring that healthcare organisations, regulators, and higher education institutions across Europe can build on DDS-MAP outputs.
- The accreditation pathways and dialogue initiated with regulatory agencies create a foundation for ongoing recognition of micro-credentials at national and European levels.
- Dissemination through peer-reviewed publications, professional networks, and open repositories will continue to ensure visibility and uptake.
- The establishment of the Actionable Transformation of Healthcare for Emergencies & Networked Agility (ATHENA) Stakeholder Network on the European Health Policy Platform provides a dedicated, long-term space for stakeholder engagement, ensuring that the partnerships, expertise, and momentum generated by DDS-MAP continue to inform European policy and practice.

By ensuring open access, integrating modules at EQF 6–7, and embedding stakeholder collaboration through ATHENA, DDS-MAP leaves behind a sustainable legacy that strengthens the digital resilience of Europe’s healthcare workforce and supports civil society in preparing for future emergencies and challenges.

Our Team



University of Maribor

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DDS-MAP

Dynamic Digital Skills for Agility and Resilience