

AGDUPT

ADdressing skills mismatching in the green sector through Digital Upskilling of veT

Pilot Implementation

Reports

Deliverable D4.4.

CESUR



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List of Abbreviations

| Acronym | Description |
|-----------------|--|
| EU | European Union |
| WB | Western Balkan |
| VET | Vocational Education and Training |
| ICBF-VET | Integrated Capacity Building Framework for VET |
| VLE | Virtual Learning Environment |
| CBP | Capacity Building Programme |

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Executive summary

The enlargement agenda of the EU that covers the region of the Western Balkans targets a several areas of interest that need to be addressed, based on the standard accession procedure, with particular focus on the labour market. Although the region's overall economic recovery appears to be on track with the accession process requirements, a significant challenge in the labour market persists: **the mismatch between the skills and competencies** provided by the workforce and those demanded by businesses. In response to this challenge, the ADDUPT project was launched to strengthen the connection between VET systems in the Western Balkans and the needs of the emerging green sector.

The ADDUPT project has set several objectives aimed at strengthening the region's VET system and fostering a successful relationship with the dynamic green sector. Firstly, it seeks to develop an **operational mechanism for diagnosing business needs** in the green sector, to facilitate timely, targeted, and comprehensive diagnosis of the green sector's needs and requirements in terms of specialisations, skills, and knowledge. The project also aims to provide an **in-depth analysis of the green sector** in the participating countries: Albania, Bosnia and Herzegovina, and Montenegro.

The project emphasizes **support for WB-VET trainers and staff**, aiming to establish flexible and interactive links between VET and the labour market, providing a concrete guidance and individualised assistance to WB-VET that wish to shift towards twin transition so to offer VET courses that are both attractive to learners and reflect the requirements of employers of the sector. The **training programme** developed through the project will contribute to improvement of the skills and knowledge of WB-VET trainers and staff in developing digital microlearning resources, to modernise the provision of VET in green-related topics. By **building the capacity of WB-VET institutions** to incorporate green labour market needs into their training provisions and curricula, the project seeks to enhance the employability potential of WB-VET learners and equip them with the skills required to thrive in the evolving green sector. To achieve this goal, the ADDUPT project prioritizes the **continuous professional development** of VET teachers and trainers in the Western Balkans. This emphasis on **training and upskilling** aims to bolster the quality of the VET sector, ensuring it remains adaptive and responsive to the ever-changing demands of the labour market.

Overall, the ADDUPT project represents a concerted effort to improve the quality of VET education and training in the Western Balkans, while addressing the specific needs of the emerging green sector. By bridging the skills gap and facilitating productive cooperation between VET and the labour market, this project strives to contribute to the sustainable growth and development of the Western Balkan region.

Introduction

The first phase of the project focused on a comprehensive identification of the green sector's needs, laying the basis for developing tools to help VET organizations update their curricula accordingly. As part of this effort, the partnership developed a dedicated **Operational Mechanism for Diagnosing Business Needs** in the Green Sector, that operates through three key stages: *analysis, consultation, and verification*. These stages involved conducting desk research, organizing expert group workshops with representatives from VET, the green sector, and educational authorities, and facilitating discussions to verify the findings, in each of the WB partners country.

Based on the findings of the Mechanism and utilising all partner organisations' experience and expertise, the partnership developed **Integrated Capacity Building Framework for VET (ICBF-VET)** within the WP3. That includes a set of resources to be utilised **for building the capacities** of VET institutes, mainly these of the WB: **a Handbook** on how the results of the Mechanism can be incorporated to VET curricula, **a Guidelines** for the development of VET Action Plans on how to update curricula and include digital resources to support this update and **a Training Programme** to familiarise VET organisations and staff with the development and incorporation of digital microlearning resources to curricula.

The focus of the ADDUPT Training Programme "**Development of Digital Microlearning Resources**" was on developing VET teachers' and trainers' pedagogical approaches and digital skills to enable them to develop resources and curricula that correspond to the needs of the green sector, hence addressing environmental sustainability and digital transformation, improving the attractiveness of VET, and contribute to forward-looking growth of the green sector. As a part of the ICBF-VET, the Training Programme was delivered through the ADDUPT Virtual Learning Environment as an asynchronous learning platform, allowing VET institutions a flexibility in their capacity building process. To provide an opportunity for continuous learning for VET institutions, the ADDUPT VLE will remain available for at least five years following the end of the Project and provide free access to all developed and regularly updated material.

Through **the piloting of the capacity building activities**, a training programme was delivered to more than 66 VET trainers/staff from Albania, Montenegro and Bosnia and Herzegovina, including two VET trainers from each WB-VET partner, offering them the opportunity to validate their acquired knowledge and skills through certification process (ECVET points). Based on the qualifications acquired, the next phase of the Project, WB-VET partners focused on developing **a set of digital microlearning resources** to adapt their currently provided courses to correspond to the identified needs of the green sector.

This report provides an overview of the **implementation of the piloting phase** of the ICBF-VET training programme in Albania, Montenegro, and Bosnia and Herzegovina. It highlights the main challenges encountered, lessons learned, and recommendations for improving future implementation. This document also outlines other key steps carried out during the project, including the **virtual training mobilities between partners and the development of 60 microlearning resources**. These resources, jointly created by the project partners, mark the completion of this, last phase of the project.

I. Capacity Building Pilot: Training Programme Delivery

Overview of the training programme

The Training Programme for the **Development of Digital Microlearning Resources** has been created under the WP3. It covers wide range of topics, including the design of digital learning materials, assessment of microlearning outcomes, and integration of microlearning into existing curricula. The material is divided into five units:

- U1: Introduction to the design of digital learning resources (4 hours)
- U2: Designing microlearning resources: Objectives, multimedia principles, and optimisation (6.5 hours)
- U3: Assessing the outcomes of microlearning: Micro credentials in VET (6.5 hours)
- U4: Incorporating microlearning resources in current curricula (6.5 hours)
- U5: Microlearning resources for mobile learning: Learning of tomorrow (6.5 hours)

Each session, delineated in the preceding discourse, represents a foundational pillar contributing to the comprehensive structure aimed at equipping VET trainers with the necessary knowledge and skills for effective engagement within the digital microlearning domain.

The structured progression from introductory concepts to nuanced principles, coupled with practical applications and evaluation methodologies, reflects a holistic pedagogical strategy. Emphasizing principles of instructional design, technological integration, and assessment modalities, the delineated chapters embody a concerted effort towards fostering proficiency and efficacy among VET practitioners.

The delineation of unit-specific objectives, activities, and skill development initiatives underscores a commitment to both theoretical understanding and practical application. This dual focus is pivotal in ensuring that the resultant training program not only imparts knowledge but also cultivates the requisite competencies for effective implementation within the educational domain.

The training programme for the **Development of Digital Microlearning Resources** includes 30 hours of training material, divided into 5 units. It is available online in the Projects VLE (www.learning4green-vle.eu) as an asynchronous learning platform. The registration process is simple, requiring candidate's basic info and email address, so to avoid participants being

discouraged with a complicated procedure. The content is available only for registered users and is available in English and all partners languages (English, Albanian, Greek, Spanish, Italian, Bosnian/Serbian/Croatian and Montenegrin).

VLE provided a flexible learning schedule, allowing participants to access and complete the modules at their own pace. This flexibility empowers learners to tailor their educational journey to their individual needs and preferences, promoting greater accessibility and accommodating diverse learning styles. The platform is easy-to-use, allows accessibility, and includes the content which provides participants interactivity and engagement, as well as tools for monitoring of progress and self-assessment. Additionally, the platform includes a tool that support collaboration and communication among participants.

Each VLE user could generate Certificate of Participation for participating in the Training course of the ADDUPT project from the platform directly.

Methodology of the Pilot delivery

The methodology for the pilot delivery of the ADDUPT Training Programme was designed to ensure smooth implementation, active participation, and consistent monitoring across the three Western Balkan partner countries. The approach was structured around four interconnected phases: (i) outreach and recruitment, (ii) training implementation via the Virtual Learning Environment (VLE), (iii) monitoring and participant support, and (iv) assessment and certification. Each phase contributed to achieving a coherent, scalable, and evidence-based piloting process.

The first phase involved an extensive outreach and recruitment campaign. Partners worked systematically to inform VET teachers, trainers, and institutional stakeholders about the training opportunity. Communication activities included national webinars where the programme's objectives, structure, and expected outcomes were presented to potential participants. These online sessions offered space for questions, enabling teachers to understand the relevance of microlearning for modern VET practices.

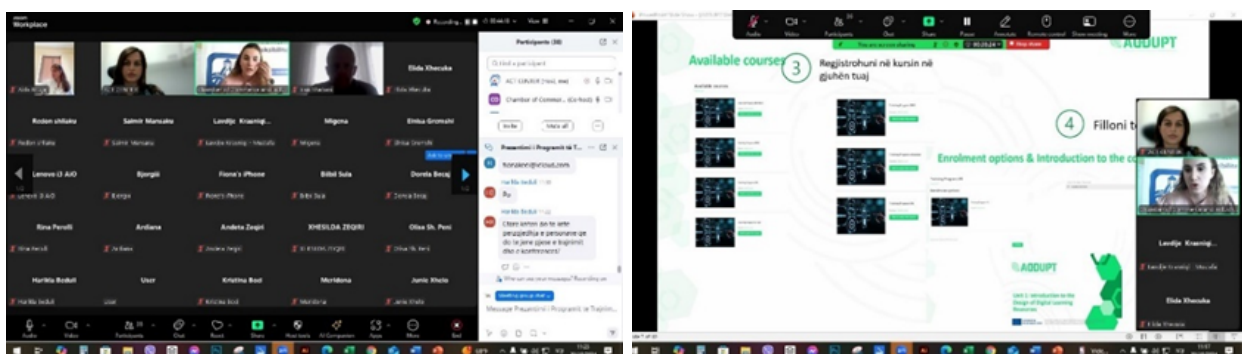


Figure x Online webinar organised in Albania

In parallel, partners distributed newsletters and informational materials, circulated announcements through institutional websites and social media channels, and contacted VET schools directly. In several cases, school visits, participation in conferences, and meetings with VET authorities played an important role in motivating educators to enrol. This multi-channel strategy ensured broad visibility and encouraged participation among professionals who might otherwise have limited access to professional development opportunities.



Figure 4 Live promotion in Bosnia and Herzegovina

The second phase centred on the implementation of the training through the ADDUPT Virtual Learning Environment, which became operational for participants on 13 November 2024. Once registered, educators could immediately access all five units of the programme and work through them at their own pace. The VLE supported interactive learning through multimedia content, quizzes, self-assessment tools, and progress-tracking features. Participants received clear guidance on how to navigate the platform, how much time each module required, and how the assessment and certification process would be conducted. The self-paced approach proved particularly beneficial for VET teachers balancing demanding work schedules, allowing them to engage with the content flexibly and continuously.

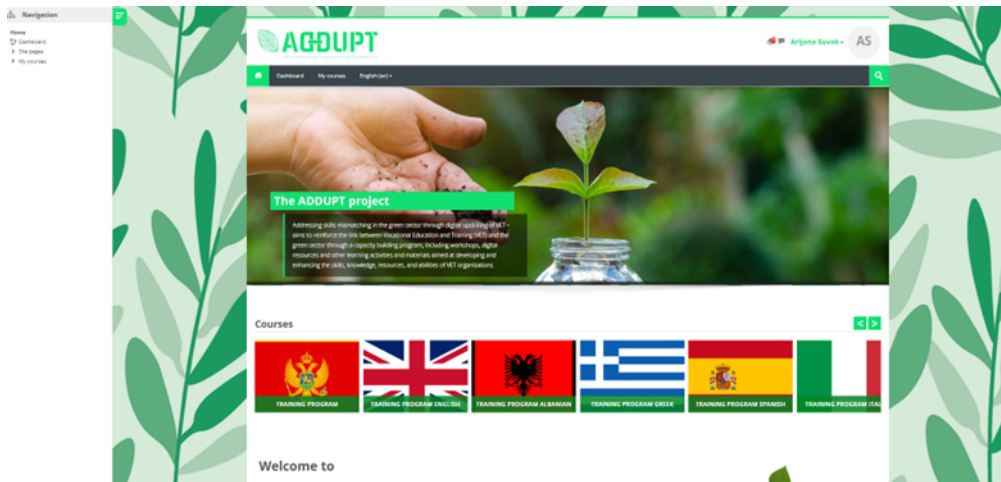


Figure 1 VLE homepage

During implementation, partners closely monitored participant engagement and supported when needed. Regular reviews of registration data, activity logs, and completion rates helped identify users who encountered technical or procedural difficulties. Communication between partners and participants was maintained throughout the delivery period, using email, telephone, and online messaging tools to resolve issues related to login, platform navigation, and language versions. Early feedback from participants led to several improvements to the VLE during the pilot period. These included enhanced translation of materials, adjustments to interactive elements, improvements to navigation, and refinements to self-assessment activities. The iterative development of the VLE ensured that the learning experience became increasingly smooth, intuitive, and accessible as the pilot progressed.

The final phase of the methodology involved assessment and certification. Participants who completed all modules and fulfilled the administrative requirements were invited to sit for an online exam administered by the accredited certification body iCert. The exam took place under remote proctoring conditions to ensure integrity and international comparability. Candidates were required to provide identification and educational documentation before participating, which in some countries created challenges due to differing attitudes toward online data submission. The assessment consisted of thirty multiple-choice questions and had a strict time limit. All candidates who sat the exam passed successfully and received the certificate “Internet of Things Specialist,” valid for five years. The use of an external certification body added credibility to the training outcomes and provided participants with a recognised qualification that could support their professional development.

The methodology of the pilot delivery combined structured planning with practical flexibility. It ensured that educators had clear access pathways, sufficient technical and pedagogical support, and transparent assessment standards. By integrating continuous monitoring and feedback mechanisms, the methodology also made it possible to refine the training in real time and adapt it to the needs of users in different national contexts. As a result, the pilot was implemented

consistently across the region, despite variations in digital readiness, institutional requirements, and administrative structures. This approach not only facilitated a successful pilot but also created a strong basis for the long-term sustainability and scalability of the ADDUPT training programme in the Western Balkans.

Implementation of the training in the Western Balkan countries

The implementation of the ADDUPT Training Programme across the Western Balkan region demonstrated how institutional conditions, digital infrastructure, administrative procedures, and teacher availability shaped the delivery of the pilot. While the programme offered a consistent framework for learning, the national contexts of Albania, Montenegro, and Bosnia and Herzegovina influenced participation levels, the ease of access to the Virtual Learning Environment (VLE), and overall engagement with the training. Despite these differences, the pilot confirmed a strong interest in digital professional development among VET teachers and highlighted areas where additional support or adaptation would further improve future delivery.

In Albania, the programme was implemented in a setting where many teachers had prior experience with digital tools, which facilitated smooth engagement with the VLE. Dissemination activities quickly attracted attention, and educators responded positively to the opportunity to strengthen their digital competences. Although there were some early difficulties related to the Albanian-language version of the platform and occasional log-in issues, these were resolved promptly through coordination between the national partner and the technical team. The active involvement of participants, combined with timely technical support, resulted in one of the highest participation and completion rates among the Western Balkan countries. Albanian educators frequently emphasised that the training complemented existing national efforts to modernise VET provision and supported their ongoing professional development.

In Montenegro, the implementation process required more targeted and sustained effort. Participation in external training programmes often requires formal approval from school leadership or the Ministry of Education, which created delays and limited the number of teachers who could join the pilot at an early stage. Several VET centres also faced constraints related to limited digital equipment and unstable internet connections. Teachers repeatedly highlighted heavy workloads during the school year, which affected their availability for additional learning activities. These factors contributed to a slower initial uptake of the training. However, once the dissemination campaign intensified and the national partner conducted additional outreach, including direct follow-up with schools and educators, registrations increased and the number of active users stabilised. Those who engaged fully with the platform demonstrated commitment to completing the training, even when managing demanding schedules and resource limitations.

In Bosnia and Herzegovina, the implementation process was shaped by a highly decentralised education system, where responsibilities and decision-making are spread across multiple

administrative levels. This fragmentation affected the consistency of communication with VET centres and contributed to significant variability in institutional willingness or ability to support teacher participation. Many schools still operate with limited ICT resources, and in some cases, internet access remains unstable or insufficient for continuous online learning. In addition, some educators expressed concerns about submitting personal documentation required for certification, which resulted in a smaller number of participants advancing to the examination stage. Nonetheless, the national partner succeeded in engaging a dedicated group of teachers who were highly motivated to strengthen their digital skills and who completed the training despite the constraints they faced. Their participation demonstrated that, even in environments with limited infrastructure, teachers are prepared to adopt new digital approaches when adequate support is available.

| <i>Albania</i> | | <i>Montenegro</i> | | <i>Bosnia and Herzegovina</i> | |
|----------------|-----------|----------------------------------|----------|-------------------------------|-----------|
| <i>F</i> | <i>M</i> | <i>F</i> | <i>M</i> | <i>F</i> | <i>M</i> |
| 41 | 10 | 26 | 5 | 40 | 15 |
| TOTAL | | TOTAL | | TOTAL | |
| 51 | | 31 | | 55 | |
| | | TOTAL 137 WB PARTICIPANTS | | | |

Table 1 Details on numbers of registered users from each WB country

Across the three countries, implementation results reflected these contextual differences. A total of 137 participants registered on the VLE, and 83 of them engaged actively with the training modules. Finally, 64 candidates proceeded to the final certification exam, and all of them passed successfully. These figures highlight both the motivation of participants and the effectiveness of the training programme. At the same time, the distribution of registrations and completion rates by country confirmed how administrative requirements, school-level support, and digital infrastructure influence participation in online professional development.

The implementation phase also highlighted several considerations for future delivery. Direct communication with VET institutions proved essential in ensuring teacher availability, especially in countries where participation depends on administrative approval. Technical support needed to be prompt and personalised, as even minor platform difficulties discouraged users who were less comfortable with digital tools. Furthermore, the availability of national-language versions of all learning materials played an important role in supporting comprehension and encouraging sustained participation. These experiences point to the need for strong coordination at both institutional and system level, particularly in environments where digitalisation remains uneven.

In summary, the delivery of the ADDUPT training programme in Albania, Montenegro, and Bosnia and Herzegovina showed that digital microlearning can be adopted effectively across different educational contexts, provided that institutional communication, technical support, and contextual adaptation are maintained throughout the process. Each country's experience contributed to a clearer understanding of the conditions that support successful participation. Together, these findings confirm that VET teachers in the Western Balkans are highly motivated to strengthen their digital and pedagogical competences and that further expansion of the programme has strong potential for long-term integration within national VET systems.

Participants' feedback and level of engagement

Participants' feedback and engagement formed an essential part of the pilot delivery of the ADDUPT Training Programme. To assess the effectiveness, usability, and overall relevance of the training, an online survey was administered to participants who had completed or progressed substantially through the Virtual Learning Environment (VLE). A total of forty-nine completed questionnaires were collected across Albania, Montenegro, and Bosnia and Herzegovina, offering a detailed picture of how participants experienced the training. The results demonstrated a consistently positive perception of the programme, with an overall satisfaction rating of 4.04 out of 5.

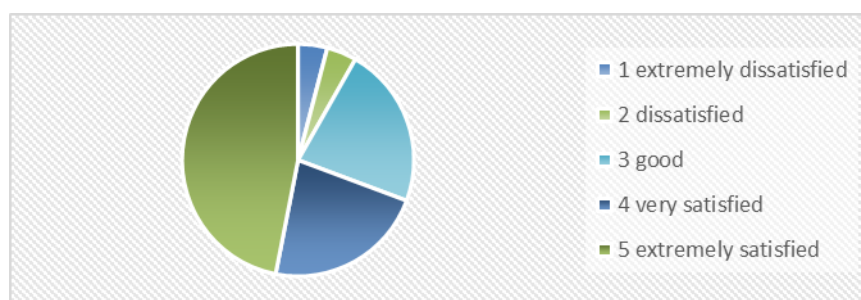


Figure 7 How would you rate the overall quality of the course content?

Across all three countries, participants responded favourably to the clarity and structure of the training modules. Many highlighted that the learning objectives were well defined, that the content followed a logical progression, and that the microlearning format made even complex topics easier to understand. The combination of short, focused learning units and engaging multimedia materials was frequently mentioned as an element that maintained motivation and helped sustain concentration throughout the training. Participants appreciated the flexibility of the self-paced format, which allowed them to organise their learning around professional and personal obligations. This flexibility proved especially important for VET teachers, who often manage substantial teaching loads and administrative responsibilities during the academic year.

Participants also commented positively on the design and functionality of the VLE. The majority found the platform intuitive, easy to navigate, and supportive of independent learning. Features

such as progress tracking, integrated quizzes, and self-assessment tools contributed to a sense of structure and helped learners monitor their advancement through the programme. Several teachers reported that the training stimulated new ideas for improving their own teaching practice, and many expressed increased confidences in developing or adapting digital learning materials. In this regard, the programme not only contributed to skills acquisition but also encouraged educators to reflect on how digital and microlearning approaches could enhance teaching within their institutions.

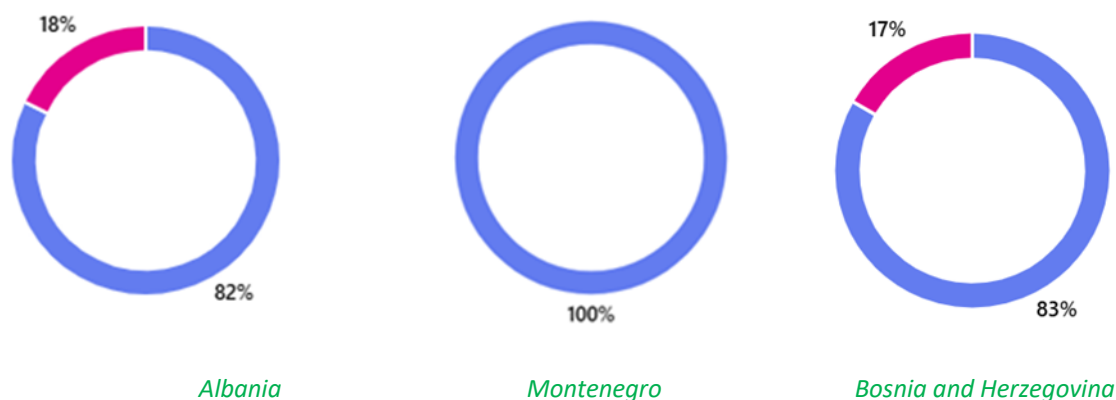


Figure 9 How relevant is the content for Your professional needs?

Despite the overall positive experience, participants also identified several challenges that affected their engagement. Some users encountered technical difficulties at the start of the pilot, particularly when registering or attempting to access certain pages of the platform. These difficulties were most common in countries where digital infrastructure is not yet fully developed. Although such issues were eventually resolved, they required additional support and clarification from the national partners. The partial availability of national-language translations during the early phase of the pilot also created confusion among some participants, particularly those who were less comfortable working in English. As the project team improved the language versions and clarified instructions, participants reported greater ease and confidence in navigating the modules.

Another area of feedback concerned the level of detail provided in the platform's automated quiz responses. Several participants indicated that they would have welcomed more explanation regarding correct and incorrect answers, as this would have strengthened the learning process and improved their understanding of key concepts. In addition, while participants valued the examples included in the modules, some expressed the desire for more scenarios specifically tailored to the Western Balkan VET context. They noted that locally relevant case studies could help teachers better visualise how microlearning approaches might be integrated into their specific subjects or institutions.

Despite these challenges, participant engagement remained strong among active users. Teachers who advanced through the modules generally continued to the end of the course, and many demonstrated a high degree of commitment by completing the training outside regular working

hours. This level of dedication indicates a growing recognition among VET professionals of the importance of digital competences for their careers and teaching practice. The fact that all sixty-four participants who sat the certification exam successfully passed further reflects both the effectiveness of the training and the motivation of learners to apply their newly acquired knowledge.

In summary, participant feedback from the pilot delivery shows that the ADDUPT Training Programme was well received and met the expectations of VET educators across the Western Balkans. Participants valued the clarity, relevance, and usability of the training content, as well as the flexibility offered by the VLE. While technical and language-related issues required attention during the early implementation phase, they did not diminish the overall positive learning experience. The constructive feedback collected through the surveys will support future improvements to the programme, ensuring that upcoming training cycles are even more accessible, context-appropriate, and aligned with the needs of educators in the region.

Conclusions of the section

The ADDUPT Training Program's pilot phase offered insightful information about the real-world application of digital microlearning materials in the VET sectors of Bosnia and Herzegovina, Montenegro, and Albania. The program effectively exposed participants to cutting-edge teaching techniques, developing the digital skills necessary to meet the demands of the green sector. Despite technological difficulties, language issues and partial institutional preparedness, the initiative showed potential in overcoming skill gaps and updating VET education. The interest in improving digital literacy among educators in the area is demonstrated by the participation of more than 80 participants from the WB countries.

The program's main result was to enhance ability of VET teachers and trainers, giving them the skills and tools needed to create and use digital microlearning materials. It is anticipated that this skill development would modernise teaching methods and make VET institutions more appealing to businesses and students both. VET institutions' capacities will be more aligned with the demands of the labour market as teachers improve their ability to use digital tools and integrate it into their courses, guaranteeing that students gain applicable skills for the changing green industry. Additionally, a more dynamic learning environment will be created by upskilling teachers, increasing VET schools' competitiveness and ability to adapt to industry demands.

As the ADDUPT project progresses, the continuous development and availability of digital microlearning materials and VLE will be essential to creating a robust and adaptable VET system that meets the changing needs of the green industry. This pilot is an important step in tearing down long-standing obstacles in the VET system of the Western Balkans and opening the door for a much-needed green and digital transition. The initiative creates the foundation for a more inclusive,

sustainable, and future-proof educational system by providing teachers digital competences and encouraging tighter cooperation between VET institutions and the workforce.

It is difficult to understate the importance of these developments in WB area, where updating educational methods is essential to unleashing economic potential. The ADDUPT initiative and Training Programme is an example of advancement, providing a possibility for VET institutions to act as change agents, boosting the digital and green transition.

II. Virtual Mobilities: Collaborative Peer-Learning Experience

Purpose and Objectives of the Virtual Mobilities

The virtual mobilities developed under the ICBF-VET framework aim to strengthen the capacity of Western Balkan VET (WB-VET) providers to modernize their training offers, better respond to green labor market needs, and develop high-quality digital microlearning resources. The initiative contributes to broader project goals by building institutional competencies, enhancing the pedagogical and digital skills of VET trainers, and supporting learners' employability through more adaptive and industry-aligned curricula. The virtual exchanges are designed not simply as online workshops, but as structured collaborative mentoring processes that foster knowledge transfer, innovation, and sustained cooperation between WB-VET institutions and their EU-VET counterparts.

These mobilities have a dual function: first, to guide WB-VET partners in developing their Individual VET Action Plans, and second, to support the creation and integration of at least twenty microlearning resources per WB-VET institution. By linking EU expertise with WB contextual knowledge, the mobilities promote curriculum enrichment, encourage the adoption of modern training methodologies, and ensure that the project outputs remain relevant to regional economic needs. An additional objective is to empower VET training participants who were engaged in prior capacity-building activities, ensuring that at least half of them take part in the virtual mobilities so that the earlier learning experience translates into practical implementation.

Methodology and Organisation of the Exchange

The virtual mobility programme is structured around a close mentoring relationship between matched WB-VET and EU-VET partners. Matching is based on compatibility in vocational fields, experience in digital and microlearning methodologies, and alignment of institutional goals. This ensures that the cooperation is meaningful, context-sensitive, and capable of generating long-term impact. EU-VET partners lead the mentoring process, offering both technical expertise and pedagogical guidance, while WB-VET partners contribute their knowledge of local industry needs, learner profiles, and institutional constraints.

Each mobility cycle is implemented through a combination of training and mentoring. Training sessions introduce common methodologies for curriculum enrichment, digital content development, and Action Plan design. Mentoring is delivered through one-to-one or small-group sessions that provide tailored feedback on the development of Action Plans and microlearning

resources. The sessions are conducted in English, with follow-up activities organised in local WB languages to ensure broad participation of trainers and staff.

The organisational structure includes three virtual mobility activities, coordinated respectively by Eurotraining, CESIE, and CESUR. These are complemented by local institutional sessions led by WB-VET staff, often involving EU mentors, to deepen understanding and accelerate the implementation of digital learning practices. The programme runs from February to June 2025, covering every stage from introductory Action Plan discussions to hands-on microlearning development, to final presentations of results.

Implementation Summary

During the implementation phase, WB-VET partners collaborate closely with their matched EU-VET institutions to gradually develop, test, and refine their Action Plans and digital microlearning resources. The process begins with an introductory session in which partners review institutional needs and align the intended Action Plan with labour market requirements. Subsequent sessions focus on follow-up and progress checks, allowing mentors to provide feedback on the structure, feasibility, and content of the plans. These steps ensure that the strategies developed by WB-VET institutions incorporate both local sectoral demands and established European good practices.

A central part of the implementation is the co-creation of digital microlearning resources. These resources are expected to address priority themes such as entrepreneurship, sustainability, digital transformation, and sector-specific technical skills. The methodological expectation is that microlearning units will integrate interactive and accessible features—including quizzes, short videos, and gamification elements—enhancing learner engagement and accommodating diverse learning needs. WB-VET partners test each resource with their students, gathering feedback and adapting content to cultural and linguistic contexts. EU-VET mentors ensure the pedagogical quality of these materials and help maintain consistency with international standards of digital learning.

Throughout the virtual mobilities, partners also discuss institutional sustainability and inclusiveness. They explore the digital tools available within each WB-VET institution, identify gaps in current platforms, and define the technical updates necessary to support long-term integration of microlearning. Collaboration with local businesses and public employment services forms an important part of this process, as it helps tailor the training resources to real market needs and facilitates stronger alignment between VET provision and economic development priorities.

The implementation process culminates in a voluntary presentation session, during which WB-VET partners showcase their completed microlearning resources, receive final expert recommendations, and prepare for the open class in which these resources are presented more broadly. A contest for the best microlearning materials incentivises quality and creativity, with winning entries published on the project website.

Conclusions of the section

The virtual mobilities, structured around systematic mentoring, targeted training, and collaborative exchange, provide a robust mechanism for implementing the ICBF-VET methodology across the Western Balkans. By pairing WB-VET and EU-VET institutions according to their expertise and strategic priorities, the initiative facilitates meaningful knowledge transfer and fosters the development of high-quality digital microlearning resources. The process strengthens institutional capacity, equips trainers with innovative pedagogical approaches, and enhances learners' employability by aligning curricula with evolving labour market needs.

Through iterative development, pilot testing, and evaluation, WB-VET partners gain practical experience in digital content creation and curriculum modernization. EU-VET partners benefit from expanded collaboration, opportunities to exchange best practices, and enhanced understanding of diverse VET contexts. Ultimately, the virtual mobility activities contribute to long-term sustainability by embedding digital and learner-centred methodologies within WB-VET institutions, ensuring that the impact of the project extends beyond its completion.

ANNEX: **MATCHING TABLE FOR PARTNERS for the VIRTUAL EXCHANGE**

| PARTNER | TOPICS OF INTEREST (identified needs as in WP2) | Observations |
|---------|--|---|
| CETEOR | <p><u>CIRCULAR WASTE MANAGEMENT- CONSTRUCTION SECTOR:</u></p> <ul style="list-style-type: none"> • Improved Waste Prevention, Reuse, and Recycling • Introduction to Cleaner Production • Health Impact Reduction: <p><u>ENERGY MANAGEMENT OF BUILDINGS:</u></p> <ul style="list-style-type: none"> • how to evaluate and monitor the success of energy-saving initiatives in public buildings • local action plans for sustainable energy. | <p>In the folder CETEOR syllabis for both courses with all details are uploaded, including all topics.</p> <p>CESUR</p> |
| CESIE | Digital ecology, slow mobility, international environmental regulations and policies, circular economy, | ACT CENTER |

| | | |
|-----------------------|---|--|
| <u>CESUR</u> | circular economy, renewable energies, waste management and recycling practices, sustainability applied to the production system, sustainable agriculture. | CETEOR |
| EUROTRAINING | Circular economy, renewable energy, green skills development for VET trainers in education, environmental awareness through adult education, sustainability in tourism and service sectors, digital tools in environmental education | EUROTraining focuses on intergrating sustainability in VET and adult education. <u>NGO GREEN HOME</u> |
| <u>ACT / CHAMBER</u> | | <u>CESIE</u> |
| <u>NGO GREEN HOME</u> | Circular economy, preservation of the environment and sustainable use of natural resources, energy efficiency and utilization of alternative energy sources, Waste management, renewable energy, green skills development for VET trainers in education, environmental awareness. | EUROTRAINING |

III. Development of Microlearning Resources

Introduction

The development of digital microlearning resources represents a cornerstone activity within the ADDUPT project, designed to bridge the gap between theoretical knowledge and practical application in vocational education and training (VET) systems across the Western Balkans. This report details the methodology, implementation timeline, outcomes, and contributions of all partner organisations involved in Work Package 4 (WP4), which focused on creating accessible, inclusive, and digitally enhanced learning materials aligned with green skills and sustainability competencies.

The primary objective was to enable practical application of knowledge acquired through earlier project activities, particularly by Western Balkan VET (WB-VET) partners in implementing their individual action plans. This initiative aimed to create and integrate digital microlearning resources adapted to existing curricula in accordance with the findings of the ICBF-VET (Inclusive Competence-Based Framework for VET) Mechanism. All resources were designed to be accessible through the project's Virtual Learning Environment (VLE) platform, with the ultimate goal of contributing to greener, more inclusive, and digitised VET curricula throughout the Western Balkans region.

Methodology for developing Microlearning resources

Foundational Principles

The methodology employed for developing digital microlearning resources was grounded in five core principles: inclusive participation, equity in action, accessible communication, feedback-driven iteration, and comprehensive capacity building. These principles ensured that the resulting materials would be pedagogically sound, culturally sensitive, and accessible to diverse learner populations.

- **Inclusive participation** ensured active involvement of women, youth, people with disabilities, and ethnic minorities throughout the development process, guaranteeing that microlearning resources would reflect varied perspectives and address the needs of all learner groups within VET institutions.
- **Equity in action** was operationalised through participatory workshops and small-group discussions that gave voice to all stakeholders, enabling trainers and content developers to co-create materials resonating with learners from different backgrounds and learning contexts.
- **Accessible communication** was prioritised through multilingual and inclusive materials. Resources were created in Albanian, Bosnian, Montenegrin, Spanish, Italian, Greek, and English, ensuring language barriers would not impede learning.
- **Feedback-Driven development** characterised the iterative nature of resource creation. Surveys, focus groups, and interactive tools were employed throughout the development cycle to gather insights and refine materials based on real-world feedback.
- **Capacity building** underpinned the entire process, with tailored training provided to empower all participants. Rather than simply producing materials, the methodology focused on building WB-VET partners' capacity to create, adapt, and integrate microlearning resources into their own institutional contexts.

Virtual Mobility Framework

A distinctive feature was the implementation of virtual mobility activities, which paired each WB-VET partner with an EU-VET partner for guidance and support. This partnership model facilitated methodological transfer, promoted inclusive and participatory approaches, and ensured proper curriculum integration and assessment strategies. The virtual mobility sessions enabled initial methodological transfer from experienced EU partners to WB partners newer to digital microlearning approaches, whilst addressing practical concerns around curriculum integration and assessment.

Key Implementation Tools

The methodology incorporated several key tools designed to ensure inclusive and equitable VET outcomes:

- **Diversity recruitment strategies** engaged women, youth, and minorities in both development and pilot testing through targeted outreach, flexible scheduling, and creation of safe spaces for diverse voices.
- **Multilingual materials** ensured content accessibility across linguistic boundaries, with translation considered from the outset.
- **Surveys and feedback mechanisms** provided structured channels for collecting participant experiences, enabling continuous improvement and responsive adaptation.
- **Tailored training modules** addressed different learner needs and institutional contexts, with training customised based on partners' existing capabilities and development priorities.
- **Real-Time monitoring dashboards** allowed project coordinators to track diversity metrics and engagement levels, enabling timely interventions when participation lagged.

Four-Step Implementation Approach

The methodology followed a structured four-step approach:

- **Prioritisation:** identifying key tasks and allocating resources efficiently, determining which sustainability competencies were most critical and which microlearning formats would be most effective.
- **Planning and implementation:** breaking down overarching goals into actionable steps with measurable outcomes, with each partner developing detailed action plans.
- **Capacity building:** providing hands-on training, mentorship, and practical experience in creating digital microlearning resources.
- **Communication and collaboration:** establishing clear channels for sharing progress, coordinating activities, and fostering teamwork.

Impact Assessment Framework

The methodology incorporated robust impact assessment mechanisms evaluating diversity metrics (gender, age, background of participants), engagement rates (attendance and active participation), and feedback effectiveness (satisfaction and learning outcomes). Recommendations emphasised regular monitoring to track diversity data and adapt communication strategies, expanding training offerings to address unmet needs, and strengthening feedback loops using data to adjust sessions in real time.

WP4 Implementation timeline

The implementation of Work Package 4 followed a carefully structured timeline designed to build capacity progressively while allowing for reflection and iteration at each stage.

- **Preliminary Organization Phase**

The process began with brainstorming sessions to define methodology, dynamics, and participant profiles, whilst identifying the thematic strengths of each VET partner. A partner matching process ensured complementarity and balanced collaboration between EU and WB partners, considering thematic expertise, pedagogical approach, language compatibility, and institutional capacity. Participants were selected with a minimum requirement that at least 50 per cent had previously taken part in training activities conducted in earlier project phases, ensuring continuity and building upon established relationships.

- **Pre-Sessions: Joint Preparation and Technical Setup**

Pre-sessions involving all trainers from both EU and WB partner organisations established agreement on timing, format, and communication tools. These webinars clarified expectations, deliverables, and platforms, ensuring all participants understood their roles and responsibilities. Technical setup was addressed during this phase, with troubleshooting support provided to participants encountering difficulties with platforms or tools.

- **Session 1: Methodology and Microlearning Foundations**

The first formal session introduced participants to the methodology and established foundational understanding of microlearning principles, providing an overview of ICBF-VET principles and demonstrating how the competence-based framework aligned with microlearning approaches. Trainers showcased examples of effective infographics, short videos, interactive quizzes, and other formats, encouraging participants to share preliminary ideas.

- **Session 2: Mentoring and Co-Creation**

The second session shifted focus to hands-on development, with EU partners providing mentorship on first resource drafts. Feedback and alignment with green skills and inclusivity criteria were central, ensuring emerging resources addressed sustainability competencies effectively whilst remaining accessible to diverse learner populations. A peer-review process enabled WB partners to provide feedback to one another and learn from different approaches.

- **ADDUPT Project Meeting in Podgorica**

Between Sessions 2 and 3, an in-person ADDUPT project meeting was held in Podgorica, Montenegro. This meeting provided an opportunity for joint review of microlearning progress, hands-on workshops to address technical challenges, and networking between EU and WB trainers.

The face-to-face interaction complemented the virtual mobility sessions by enabling deeper discussions, relationship building, and collaborative problem-solving that is sometimes difficult to achieve in online settings. Participants valued the opportunity to connect personally with colleagues they had been working with virtually.

- **Session 3: Finalization and Reflection**

The third and final session focused on providing final feedback on resources, reflecting on the process and lessons learnt, and planning for translation, upload to the VLE platform, and curriculum integration. This concluding session emphasised not only completion of specific resources but also broader capacity-building outcomes, with participants discussing how they would continue to create and adapt resources in the future.

Summary of Trainers' Reports

The virtual mobility sessions were documented through comprehensive trainer reports that captured session details, topics covered, levels of engagement and understanding, challenges encountered, and recommendations for follow-up actions. These reports provide valuable insights into the implementation process and outcomes achieved by each partner pairing.

ACT Center (Albania) and CESIE ETS (Italy)

The partnership between ACT Center and CESIE ETS exemplified effective collaboration and productive knowledge transfer. Three virtual mobility sessions were conducted between May and July 2025, involving substantial numbers of participants and addressing a comprehensive range of topics.

- **Session 1 (May 22, 2025)** lasted one hour and fifteen minutes with 24 participants and trainers Fabiana Adamo, Nevi Mazreku, and Aris Tasho. The session provided an overview of digital microlearning, including definition, purpose, key elements, advantages, and comparison with traditional eLearning approaches. Categories of microlearning, evaluation

using the Kirkpatrick Model, practical tools, roadmap development, and ADDUPT project objectives were all covered comprehensively.

Participants showed strong engagement and understanding, contributing experiences and resources that enriched the discussion and supported the project's development. The bilingual approach (English and Albanian) ensured effective communication and full engagement with content on green and digital skills, microlearning principles, and evaluation models.

The meeting proceeded smoothly with no significant challenges. Recommendations included prompt distribution of all shared materials, including presentations, content suggestions, and tutorial links, along with practical support to help participants use the digital tools required for creating microlearning resources.

- **Session 2 (June 13, 2025)** was shorter, lasting 40 minutes with three participants and the same trainer team. Four digital microlearning resources were presented: infographics on Circular Economy and E-commerce, a brochure on Digital Ecology, and a video on Sustainability. The resources featured clearly structured content with well-defined learning objectives.

The session proceeded smoothly without significant technical issues, time limitations, or other difficulties. Recommendations focused on practical matters, including clarification on logo use and disclaimers for upcoming microlearning resources, and review of proposed dates for the third virtual mobility session with trainers.

- **Session 3 (July 10, 2025)** involved 14 participants over one hour and covered the presentation and validation of 20 microlearning resources. These resources were divided into four competence areas: Embodying Sustainability Values, Embracing Complexity Futures in Sustainability, Envisioning Sustainable Futures, and Acting for Sustainability. The resources took various forms including videos, infographics, leaflets, and quizzes.

Key messages and corresponding objectives for each microlearning module were expressed clearly and summarized in a final Excel table. VET trainers demonstrated clear understanding of the resources developed and proposed channels of dissemination including social media, printed materials, and newsletters to reach the wider public of VET institutions.

The session was conducted bilingually in English and Albanian with translations when needed, addressing linguistic diversity without compromising engagement. No real challenges were encountered. Recommendations emphasized dissemination through the ADDUPT website and social media, partners' social media and communication channels, and sharing with VET institutes.

CETEOR (Bosnia and Herzegovina) and CESUR (Spain)

The collaboration between CETEOR and CESUR demonstrated the value of patient, supportive mentoring in building capacity for digital resource development.

- **Session 1 (May 14, 2025)** lasted two hours with 14 participants and trainers Irene Miguel, Raquel Plaza, and Elma Kavazovic. Topics covered included virtual mobility concepts, advice on didactic methodology, the microlessons platform, and microlearning digital resources fundamentals.

The session focused on the essential question: What are microlearning digital resources? Minor technical issues were encountered, and some participants struggled with time management and understanding the microlearning concept, which was new to many. Recommendations included encouraging participants to share their own examples for peer feedback and collaborative learning and offering follow-up materials or guides to reinforce key concepts and ensure continued engagement.

- **Session 2 (June 16, 2025)** took place during the summer holiday period, lasting one hour with only two participants. Topics included curriculum enrichment, digital resource development and piloting procedures, guidance for implementing Action Plans, and scheduling the third and final virtual mobility session focused on feedback.

Although participation was limited, the discussion on four microlearning resources was constructive and focused. Active participants demonstrated sound understanding of the content and provided valuable feedback on both pedagogical and linguistic aspects. The low participation due to summer holidays and time constraints highlighted the importance of strategic scheduling. Recommendations emphasized offering individual or small group consultations for feedback on microlearning development to accommodate participants' varying schedules.

- **Session 3 (July 16, 2025)** lasted 30 minutes with 10 participants returning after the summer period. Topics covered monitoring and revision of the microlearning resources created, curriculum enrichment and digital resource development, piloting processes, and open discussion for questions, suggestions, and comments from participants.

Participants commented on their experience and engaged in a positive exchange of opinions and perspectives on the process and challenges encountered. They reported feeling stronger as a group and overall happy with the opportunity to learn about new tools, expressing willingness to continue learning and training in the field. No difficulties were encountered as everyone collaborated and respected speaking turns, creating a balanced conversation. Recommendations encouraged continuation of work on creating microlearning resources and seeking advice or assistance as necessary.

EUROTraining (Greece) and Green Home (Montenegro)

The partnership between EUROTraining and Green Home showcased intensive, hands-on collaboration with strong participant engagement and interest in digital tools and participatory methods.

- **Session 1 (May 26, 2025)** lasted one hour and thirty minutes with 11 participants and trainer Christina Stamataki. The session aimed to introduce participatory methods for virtual

learning, demonstrate tools like Miro (a collaborative online whiteboard), and provide effective practice examples of microlearning resources.

Throughout the session, participants asked questions, showed interest, and requested additional clarification about the tools and topics mentioned. Some participants experienced problems connecting to the meeting (camera, microphone issues), but these were resolved, and no significant problems persisted. Recommendations included focusing in more detail on tools and microlearning resources in following sessions and sending session materials to participants for reference.

- **Session 2 (also dated May 26, 2025, likely a continuation or closely following session)** lasted one hour and thirty minutes with 10 participants and the same trainer. During this session, participants created materials with the help of tools through co-creation and mentorship.

Participants were very interested, used the tools effectively, and followed the trainer's instructions attentively. They asked many questions and showed enthusiasm for the topic. After the session ended, representatives of NGO Green Home received additional questions about future sessions and the possibility of even more detailed learning opportunities.

Technical problems with creating accounts for participants emerged as a challenge, along with lack of time for rather large topic coverage. The period of the year, annual vacations, and similar scheduling factors made it difficult for participants to allocate time for participation. Recommendations from participants suggested dividing the second session into two parts (two additional sessions) so that exercises and topics covered would be better understood with adequate time devoted to each component.

- **Session 3 (May 30, 2025)** was a one-hour session with three participants focused on presentation of created resources for microlearning, consulting on their quality, and providing advice for improvement. Useful tips were received for continuing creation as well as improving existing resources. No challenges were encountered during this final session. Recommendations encouraged continuing work on microlearning resource creation and seeking advice or assistance as necessary.

Contribution of each WB-VET partner

The three Western Balkan VET partners each made distinctive and valuable contributions to the digital microlearning resources developed through WP4. Their resources reflected both the shared sustainability competencies emphasized by the ADDUPT project and the unique sectoral focuses and institutional contexts of each organization.

ACT Center (Albania) - Partnership with CESIE ETS (Italy)

ACT Center developed 20 comprehensive microlearning resources organized across the four GreenComp competence areas, demonstrating remarkable productivity and engagement with the framework.

- **Embodying sustainability values** was addressed through five resources: "What is sustainability?" provided foundational understanding; "Ethical consumption" explored decision-making frameworks; "Social impact of consumption choices" examined community and equity dimensions; "Environmental impact of consumption choices" focused on ecological consequences; and "Ethical standards in consumption" established normative guidelines for responsible behavior.
- **Embracing complexity futures** in Sustainability included five resources addressing digital commerce: "E-commerce cycle" mapped the complete journey of online transactions; "E-consumer behaviour: dark patterns" revealed manipulative design practices; "E-Greenwashing" exposed misleading environmental claims in digital marketing; "Sustainable e-Consumer" promoted responsible online purchasing; and "Sustainable e-Commerce examples" showcased best practices.
- **Envisioning sustainable futures** featured five resources on circular economy: "Circular economy vs. Linear Economy" contrasted the two models; "Principles of 5Rs" (Refuse, Reduce, Reuse, Repurpose, Recycle) provided actionable frameworks; "Life Cycle Analysis" introduced assessment methodologies; "Greenwashing" equipped learners to identify false sustainability claims; and "Circular Economy practices in VET schools" localized concepts to educational settings.
- **Acting for sustainability** comprised five resources on digital ecology: "Digital ecology" introduced the concept and its importance; "Digital devices usage" examined consumption patterns; "Digital devices disposal" addressed e-waste challenges; "Sober digital consumption in VET schools" promoted mindful technology use; and "Consumer activism" empowered learners to advocate for change.

These resources took various forms including videos, infographics, leaflets, and quizzes, demonstrating versatility in format selection. The Albanian team showed strong understanding of how different formats serve different pedagogical purposes and adapted their approach accordingly.

CETEOR (Bosnia and Herzegovina) - Partnership with CESUR (Spain)

CETEOR developed 20 microlearning resources with a distinctive focus on the construction sector and building energy efficiency, reflecting their institutional specialization and the economic priorities of their region.

- **Embodying sustainability values** included seven resources: "From linear to circular economy" established foundational concepts; "Hierarchy waste 5R" provided prioritization

frameworks; "9R approach to waste management" expanded the traditional model; "NERMAddupt" addressed specific regional context; "Mechanical ventilation and heat recovery" introduced energy-efficient systems; "Smart energy savings – energy efficiency" promoted intelligent consumption; and "Energy renovation of municipal buildings" showcased public sector applications.

- **Embracing complexity futures** in Sustainability featured two resources: "Circular economy benefits" highlighted advantages and "Construction waste management" addressed sector-specific challenges with practical solutions.
- **Envisioning sustainable futures** included three resources: "Circular economy long" (presumably addressing long-term perspectives), "Envisioning Sustainable Futures," and "Building Smarter Solutions" focused on innovation in construction.
- **Acting for sustainability** comprised eight resources with practical construction applications: "Build your future" inspired career pathways; "Construction waste is not trash!" reframed waste as resource; "Circularity actors across the value chain" mapped stakeholder roles; "Construction measures" detailed specific interventions; "Mechanical system – Heating system components" provided technical knowledge; "Energy-Efficiency-in-Lighting-and-Sensor-Systems" addressed emerging technologies; "Energy Efficiency in Schools - Case Study and Achieved Results" demonstrated real-world outcomes; "Construction measures - effects, savings and costs" enabled cost-benefit analysis; and "Monitoring of Consumption – Analysis of Monthly Bills" taught practical assessment skills.

CETEOR's resources distinguished themselves through their sector-specific focus and practical orientation, providing VET learners in construction trades with directly applicable knowledge and skills for implementing circular economy and energy efficiency principles in their future careers.

Green Home NGO (Montenegro) - Partnership with EUROTraining (Greece)

Green Home developed 25 highly interactive and engaging microlearning resources that emphasized active learning, gamification, and hands-on activities. Their approach reflected innovative pedagogical thinking and commitment to making sustainability education engaging and accessible.

- **Embodying sustainability values** included five creative resources: "Eco-Label Decoder" helped learners interpret environmental certifications; "Circular Product Makeover" engaged redesign thinking; "Renewable Energy Bingo" gamified energy literacy; "Daily Plastic Tracker" promoted behavioral awareness; and "Eco-Mindset Reflection" encouraged metacognitive thinking about sustainability values.
- **Embracing complexity futures** in Sustainability featured five resources exploring systems thinking: "Lifecycle of a T-Shirt" traced supply chains and environmental impacts; "Urban Waste Map" visualized local waste systems; "Climate Crisis in 60 Seconds" communicated urgency accessibly; "Circular Hero Quiz" assessed and built knowledge; and "Zero Waste Challenge" promoted behavioral change through goal-setting.

- **Envisioning sustainable futures** comprised five forward-looking resources: "Energy Source Match-Up" taught renewable energy types; "Design a Circular Café" applied circular principles creatively; "Packaging Footprint Tracker" quantified environmental impacts; "Circular Economy Myths 2.0" addressed misconceptions; and "Upcycling Gallery" showcased creative reuse possibilities.
- **Acting for sustainability** included five action-oriented resources: "Energy Choice Simulation" explored decision-making; "Your Ecological Handprint" reframed impact positively; "10 Steps to Composting" provided practical guidance; "Regenerative vs Sustainable" distinguished concepts; and "Circular Cities of the Future" envisioned systemic transformation.

Green Home's resources stood out for their creativity, interactivity, and accessibility. The use of gamification, challenges, and hands-on activities reflected understanding of how to engage diverse learners and make abstract sustainability concepts concrete and personally relevant.

Conclusions of the section

The development of digital microlearning resources through Work Package 4 of the ADDUPT project represents a significant achievement in capacity building, knowledge transfer, and curriculum innovation for VET systems in the Western Balkans. The process and outcomes demonstrate several key successes and generate important insights for future initiatives.

Achievement of Core Objectives

The project successfully achieved its core objectives of enabling practical application of knowledge, creating and integrating digital microlearning resources adapted to curricula, ensuring accessibility through the VLE platform, and contributing to greener, more inclusive, and digitized VET curricula.

All three WB-VET partners developed substantial collections of microlearning resources—65 resources in total—addressing all four GreenComp competence areas. The resources were created in multiple languages, ensuring linguistic accessibility across the Western Balkans region and beyond. The virtual mobility framework successfully paired WB partners with experienced EU partners, facilitating effective knowledge transfer and ongoing mentorship relationships.

Methodological Strengths

The inclusive and participatory methodology proved highly effective in ensuring diverse representation and engagement. The four-step approach (Prioritization, Planning and Implementation, Capacity Building, Communication and Collaboration) provided clear structure while remaining flexible enough to accommodate different institutional contexts and partner needs.

The virtual mobility framework, combining pre-sessions, three structured development sessions, and an in-person project meeting, balanced efficiency with relationship-building. The use of bilingual approaches and multilingual materials addressed linguistic diversity effectively without compromising content quality or pedagogical rigor.

Real-time monitoring and feedback mechanisms enabled responsive adaptation throughout the development process, ensuring that challenges were addressed promptly and that resources remained aligned with project goals and learner needs.

Distinctive Partner Contributions

Each WB-VET partner made distinctive contributions reflecting their institutional strengths and sectoral focuses. ACT Center's comprehensive coverage across all competence areas with diverse formats demonstrated strong pedagogical understanding and adaptability. CETEOR's construction sector focus provided practical, immediately applicable resources for vocational learners in building trades. Green Home's innovative, interactive approach showcased how gamification and active learning strategies can make sustainability education engaging and accessible.

These different approaches enriched the overall resource collection, providing diverse models for other VET institutions to draw upon and adapt to their own contexts.

Challenges and Adaptive Responses

The implementation process encountered and successfully addressed several challenges. Technical issues with connectivity and platform access were resolved through patient troubleshooting and technical support. Scheduling difficulties, particularly during summer holiday periods, highlighted the importance of strategic timing and flexible arrangements. Some participants' initial struggles with new concepts and time management were addressed through follow-up materials, individualized support, and adjustment of session pacing.

The projects demonstrated impressive adaptability in responding to these challenges, with trainers modifying approaches based on feedback and maintaining engagement even when participation levels fluctuated.

Capacity Building Outcomes

Beyond the production of specific resources, WP4 achieved significant capacity-building outcomes. WB-VET partners developed skills in digital resource creation, pedagogical design for microlearning, inclusive education practices, curriculum integration strategies, and collaborative development processes.

Participants reported increased confidence in their ability to create additional resources independently, stronger connections with colleagues across the Western Balkans region, and clearer understanding of how to integrate sustainability competencies into their teaching practice.

Dissemination and Sustainability

The resources are accessible through the ADDUPT VLE platform and available in multiple languages, maximizing their reach and impact. Partners have developed dissemination plans including social media campaigns, integration into institutional communication channels, sharing with VET institutes regionally and nationally, and incorporation into existing curricula.

The capacity ensures sustainability beyond the project period, with partners equipped to continue creating, adapting, and sharing microlearning resources addressing emerging sustainability challenges and evolving learner needs.

Recommendations for Future Initiatives

Based on this experience, several recommendations emerge for future similar initiatives. Adequate time should be allocated for conceptual understanding, particularly when introducing new pedagogical approaches. Strategic scheduling should avoid holiday periods and other predictable barriers to participation. Multiple formats for support should be offered, including large group sessions, small group consultations, and individualized assistance to accommodate different learning preferences and schedules. Peer learning opportunities should be emphasized, as partners learned significantly from one another's approaches and experiences. Bilingual and multilingual facilitation should continue to be prioritized to ensure genuine inclusion across linguistic boundaries. Technical support should be proactive rather than reactive, with thorough platform testing and participant preparation before sessions begin.

Final Reflection

The digital microlearning resources developed represent more than a collection of educational materials. They embody a collaborative, inclusive approach to curriculum innovation that respects local contexts while building shared commitment to sustainability and green skills development. The virtual mobility framework demonstrated that meaningful knowledge transfer and capacity building can occur across borders and institutions when structured thoughtfully with genuine commitment to partnership and mutual learning. As the Western Balkans region continues to align its VET systems with European standards and address pressing environmental challenges, the resources and relationships developed through this initiative provide a strong foundation for ongoing innovation and collaboration. The 60 microlearning resources created, alongside the enhanced capacity of VET trainers and institutions, represent a lasting contribution to more sustainable, inclusive, and effective vocational education throughout the region.

IV. Microlearning resources

The 60 microlearning resources developed have been structured around four competence areas and are available in English, Spanish, Italian, Greek, Bosnian, Albanian, and Montenegrin. They can be accessed here: <https://learning4green.eu/micro-learning-resources/>



V. General Conclusions

The pilot implementation of the Integrated Capacity Building Framework for VET (ICBF-VET) within [the ADDUPT project](#) confirms the relevance and effectiveness of combining digital capacity building, microlearning methodologies, and transnational cooperation to support the modernisation of VET systems in the Western Balkans. The activities implemented under Work Package 4 demonstrate that well-structured, flexible, and inclusive approaches can address skills mismatches in the green sector while strengthening institutional and individual capacities.

The pilot delivery of the training programme on the development of digital microlearning resources successfully enhanced the digital and pedagogical competences of VET teachers and trainers in Albania, Montenegro, and Bosnia and Herzegovina. Despite differences in institutional readiness, administrative frameworks, and digital infrastructure, the programme proved adaptable to diverse national contexts. Participation levels, completion rates, and participant feedback indicate a strong demand for flexible professional development opportunities and confirm the suitability of asynchronous learning through the [Virtual Learning Environment](#) (VLE). The programme enabled educators to strengthen their ability to design, integrate, and apply digital learning resources aligned with labour market needs, particularly in relation to the green transition.

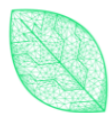
At institutional level, the pilot contributed to increased capacity for curriculum innovation and responsiveness to labour market demands. By equipping teachers with practical tools and methodologies, the training supported the gradual alignment of VET provision with emerging green skills requirements. The continued availability of the VLE beyond the project lifetime further reinforces the sustainability of these outcomes and provides a basis for ongoing professional development.

The virtual mobility activities represented a key added value of the pilot phase. Through structured mentoring and peer-learning exchanges between Western Balkan and EU VET institutions, the virtual mobilities facilitated effective knowledge transfer and practical application of the ICBF-VET methodology. These exchanges supported the development of Individual Action Plans and ensured that microlearning resources were pedagogically sound, labour-market relevant, and adapted to local contexts. The mentoring-based model proved effective in fostering collaboration, strengthening institutional confidence, and building professional networks with long-term potential.

The development of [digital microlearning resources](#) constitutes a major tangible outcome of the pilot implementation. A total of 60 microlearning resources were produced, covering all four GreenComp competence areas and addressing sustainability themes relevant to different vocational sectors. The diversity of formats and pedagogical approaches reflects both shared project principles and the specific expertise of each Western Balkan partner. The emphasis on inclusiveness, multilingual accessibility, and iterative improvement ensured that the resources are adaptable, learner-centred, and suitable for integration into existing curricula.

The pilot phase also generated important lessons. Technical constraints, scheduling challenges, and varying levels of digital familiarity highlighted the need for proactive technical support, flexible implementation timelines, and strong institutional communication. The project's ability to adapt to these challenges demonstrates the robustness of the implementation approach and provides valuable guidance for future scaling and replication.

Overall, the pilot implementation of WP4 confirms that the ADDUPT approach effectively supports the digital and green transition of VET systems in the Western Balkans. By strengthening individual competences, institutional capacity, and cross-border cooperation, the project has laid a solid foundation for more resilient, inclusive, and future-oriented VET provision. The outcomes achieved represent a sustainable contribution that can be further expanded and embedded within national and regional VET strategies.



AGDUPT

Addressing skills mismatching in the green sector through Digital Upskilling of vET



Coordinator

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CESIE

Italy



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