



WP2-A9. Raportul expertului extern privind rezultatele WP2.



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Transilvania
University
of Brasov





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1. INTRODUCERE

Acest document prezintă rezultatele activității WP2-A9, intitulată „*Raportul expertului extern privind rezultatele WP2*”, care face parte din Pachetul de lucru 2: „*Curriculum european comun privind managementul deșeurilor prin aplicarea tehnologiilor blockchain pentru industria pietrei naturale, cu accent pe profesioniștii cu vârsta de 45 de ani și peste*”.

Raportul sintetizează evaluarea pedagogică și tehnică independentă realizată de un expert extern în educație și formare profesională (VET), desemnat prin KSK. Evaluarea s-a concentrat pe calitatea, coerența internă și relevanța europeană a rezultatelor WP2, precum și pe utilitatea lor practică pentru cursanții adulți și furnizorii de formare care activează în lanțul valoric al pietrei naturale.

Pentru realizarea analizei, evaluatorul a examinat întregul set de livrabile WP2 (de la WP2-A1 la WP2-A6, precum și WP2-A8, incluzând toate versiunile lingvistice disponibile).

KSK a colaborat cu un expert dintr-o altă școală VET pentru a evalua acest pachet de lucru, evidențiind Curriculumul RockChain drept principalul rezultat al WP2.

Feedback-ul a fost colectat prin intermediul unui chestionar structurat, conceput pentru a valida soliditatea activităților realizate, a identifica eventuale lacune sau inconsecvențe și a propune îmbunătățiri aplicabile pentru etapele următoare ale implementării proiectului.

2. CHESTIONAR DE EVALUARE

Chestionarul utilizat pentru evaluarea externă a WP2 a fost următorul:

RockChain. Evaluation of WP2: European common curricular on Waste Management applying Blockchain technologies for Ornamental Rock Industry focused on professionals over 45 years old

TRANSVERSAL TECHNOLOGICAL SKILLS FOR THE ORNAMENTAL ROCK INDUSTRY
FOCUSING ON THE
APPLICABILITY OF BLOCKCHAIN IN A CIRCULAR ECONOMY
REFERENCE: 2023-1-DE02-KA220-ADU-000166863





Organisation: *

- Deutscher Naturwerkstein-Verband e.V. (DNV)
- Asociación Empresarial de Investigación Centro Tecnológico del Mármol, Piedra y Materiales (CTM)
- Universitatea Transilvania din Brasov (UNITbv)
- Klesarska skola (KSK)

1. Overall, how satisfied were you with the management and development of the WP2 (Work Package 2): European common curricular on Waste Management applying Blockchain technologies for Ornamental Rock Industry focused on professionals over 45 years old ?

1 2 3 4 5

Not satisfied at all Very satisfied

2. Comparative study of the curricula focused on Blockchain technology in the participating countries. Please rate the following aspects.

	Fully disagree	Rather disagree	Neither agree nor disagree	Rather agree	Fully agree
The comparative study on Blockchain technology in the participating countries was comprehensive.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Differences in Blockchain technology between the participating countries were clearly identified.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The results of the study were useful for adapting the project strategies at the European level.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Comparative study of the curricula focused on Waste management of Ornamental Rock Industry and connected industries in the participating countries. Please rate the following aspects.

	Fully disagree	Rather disagree	Neither agree nor disagree	Rather agree	Fully agree
The comparative study was comprehensive.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Differences between the participating countries were clearly identified.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The study provided a clear picture of how curricula are structured in different national contexts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The results of the study were useful for adapting the project strategies at the European level.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Definition of the learning objectives and learning outcomes of the curriculum.
Please rate the following aspects.

	Fully disagree	Rather disagree	Neither agree nor disagree	Rather agree	Fully agree
The learning objectives defined for the curriculum were clear and adequate for the purposes of the project.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Learning outcomes were consistent with the project's educational objectives.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The learning objectives and outcomes were aligned with the needs of the sector.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The definition of learning objectives was adequate to guide curriculum development.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Determine the most appropriate learning methodology for calculation of stone waste applying Blockchain technology. Please rate the following aspects.

	Fully disagree	Rather disagree	Neither agree nor disagree	Rather agree	Fully agree
The learning methodology selected for the for calculation of stone waste applying Blockchain technology was adequate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The proposed methodology facilitated the understanding of the key concepts related to calculation of stone waste applying Blockchain technology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The methodological choice was effective in achieving the educational objectives of the project.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. Field research in each project country on level of human and technological resource capacity for teaching RockChain in mining-related training centres and universities. Please rate the following aspects.

Fully disagree Rather disagree Neither agree nor disagree Rather agree Fully agree

Field research on the level of human and technological resource capacity for teaching RockChain in mining-related training centres and universities in each participating country was exhaustive.

The level of human and technological resources available for RockChain education was adequately assessed.

The field research provided a clear picture of the capacities and limitations of each country.

The results of the field research were useful for planning future actions in the project.

7. RockChain Curriculum: Production of a rock ornamental waste management curriculum using blockchain technology. Please rate the following aspects.

Fully disagree Rather disagree Neither agree nor disagree Rather agree Fully agree

The common European curriculum on the calculation of rock ornamental waste management using blockchain technology was clear and coherent.

The curriculum adequately reflected European best practices and standards in the area.

The creation of the common curriculum allowed for an effective harmonisation of educational approaches in the participating countries.

The common European curriculum was useful for standardising learning on blockchain technology in rock ornamental waste management..

8. Production of the different linguistic versions of the curriculum and previous tasks of WP2. Please rate the following aspects.

Fully disagree Rather disagree Neither agree nor disagree Rather agree Fully agree

The quality of the translations facilitated the understanding of the results in all participating countries.

All translations were done in a timely manner and within the established deadlines.

The translation of the results contributed to better communication between the project partners.

9. First International Seminar in Pucisca (Croatia). Please rate the following aspects.

	Fully disagree	Rather disagree	Neither agree nor disagree	Rather agree	Fully agree
The first international seminar in Pucisca was organised effectively.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The topics addressed at the seminar were relevant and aligned with the project objectives.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The organisation and logistics of the seminar were adequate to encourage participation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. External expert report of WP2 Results. Please rate the following aspects.

	Fully disagree	Rather disagree	Neither agree nor disagree	Rather agree	Fully agree
The external expert's report on the results of WP2 provided an objective and detailed assessment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The recommendations of the external expert were clear and applicable for the improvement of the project.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The report highlighted strengths and areas for improvement in the results obtained in WP2.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The external evaluation was useful to validate the quality and effectiveness of the WP2 results.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



11. Remarks. Please add any comments you consider appropriate about the tasks developed in this WP2.

Tu respuesta

12. Please, tell us what kind of improvement you can suggest for the WP2:

Tu respuesta



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Enviar

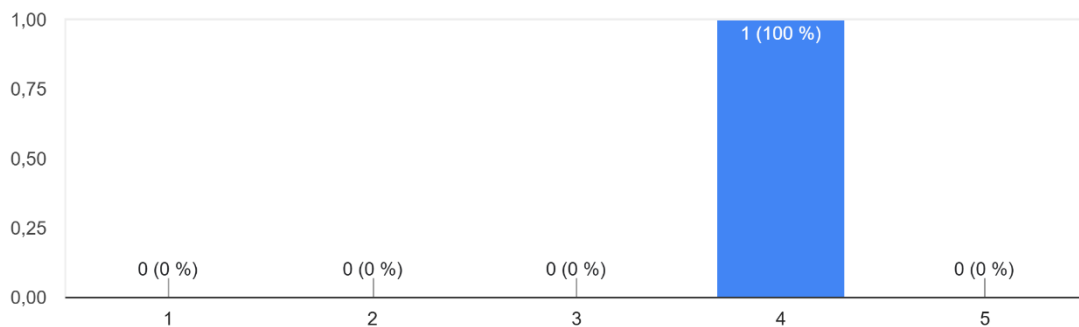
Borrar formulario

3. RĂSPUNS

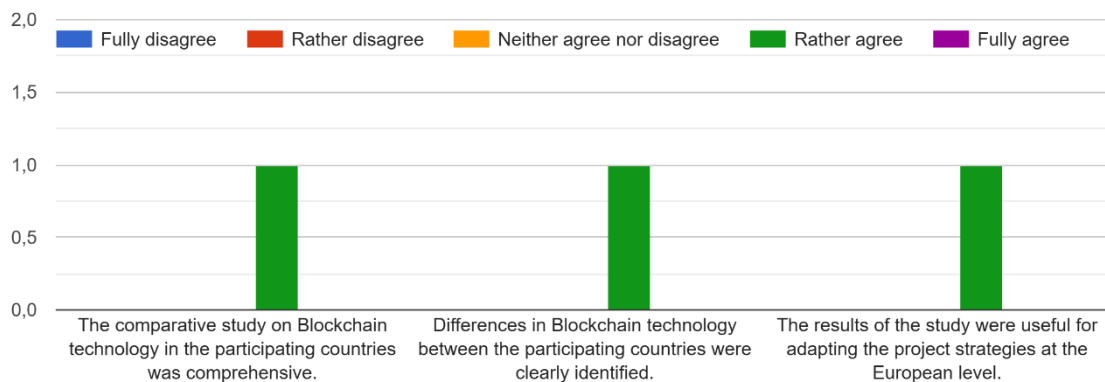
Răspunsurile la chestionarul pentru WP2 sunt prezentate mai jos (capturi de ecran ale răspunsurilor scrise și reprezentare grafică a evaluărilor):

1. Overall, how satisfied were you with the management and development of the WP2 (Work Package 2): European common curricular on Waste ...try focused on professionals over 45 years old ?

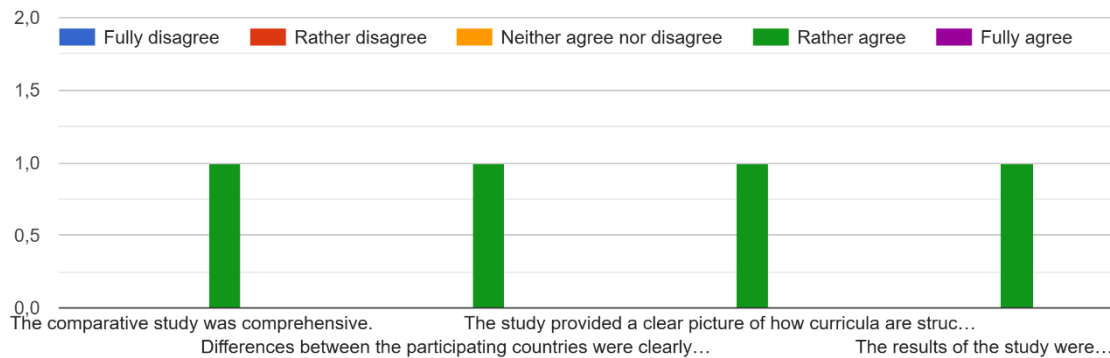
1 respuesta



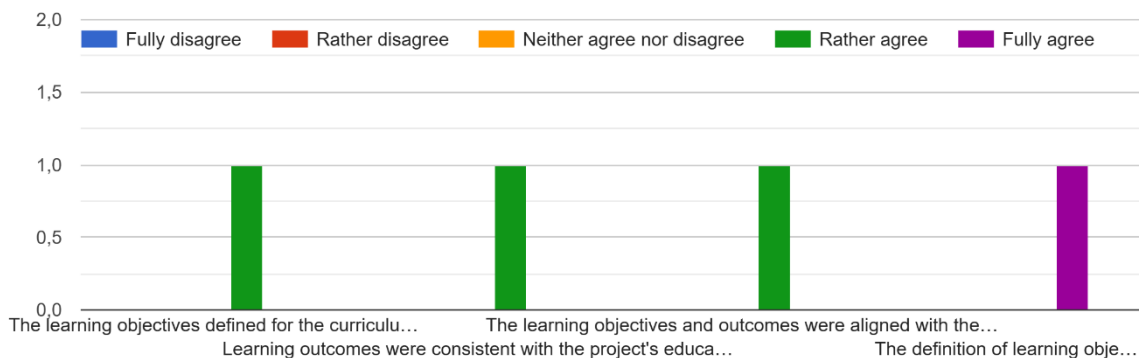
2. Comparative study of the curricula focused on Blockchain technology in the participating countries. Please rate the following aspects.



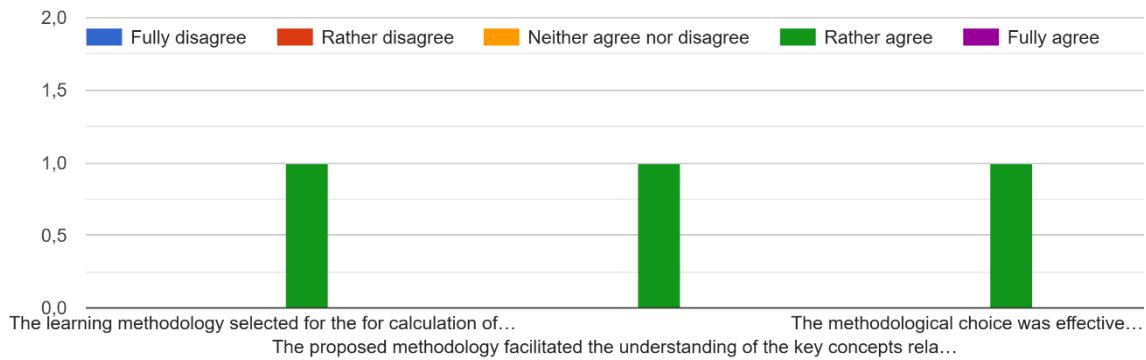
3. Comparative study of the curricula focused on Waste management of Ornamental Rock Industry and connected industries in the participating countries. Please rate the following aspects.



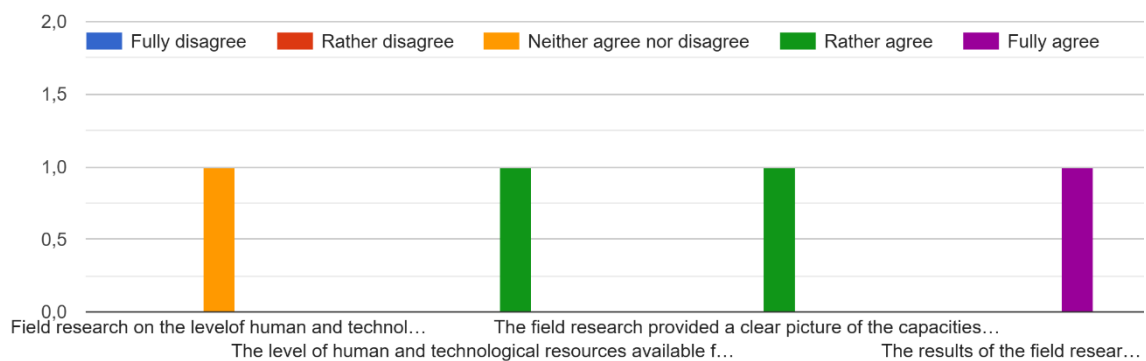
4. Definition of the learning objectives and learning outcomes of the curriculum. Please rate the following aspects.



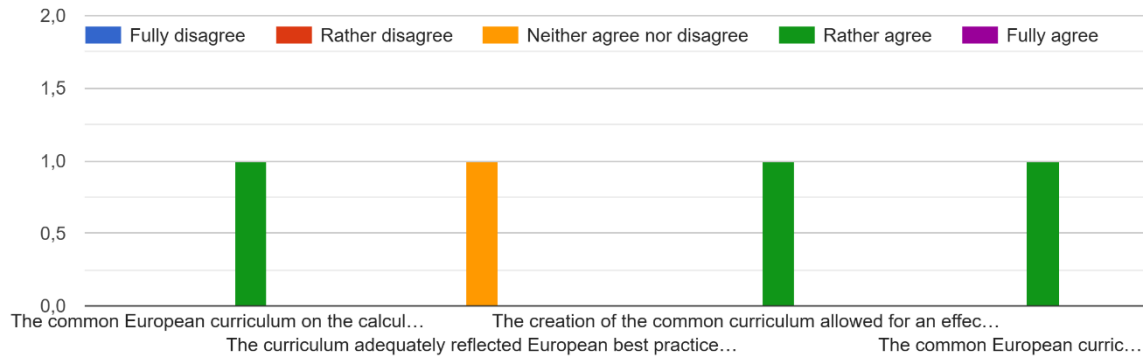
5. Determine the most appropriate learning methodology for calculation of stone waste applying Blockchain technology. Please rate the following aspects.



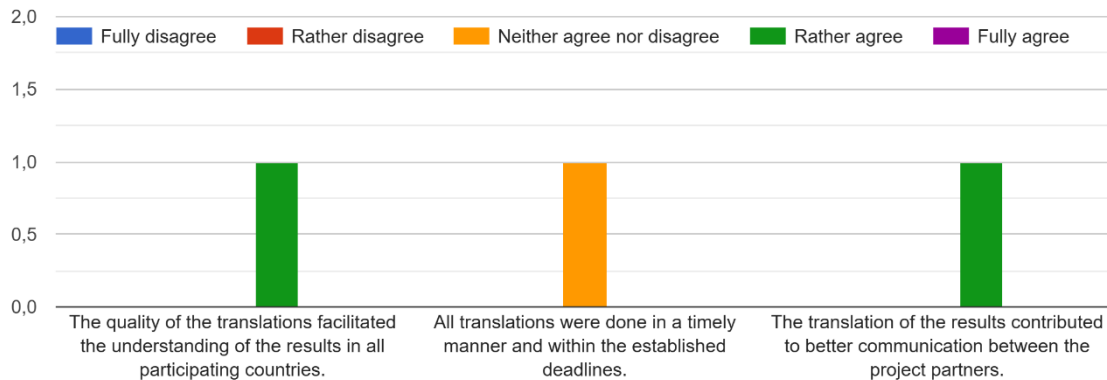
6. Field research in each project country on level of human and technological resource capacity for teaching RockChain in mining-related training centr...nd universities. Please rate the following aspects.



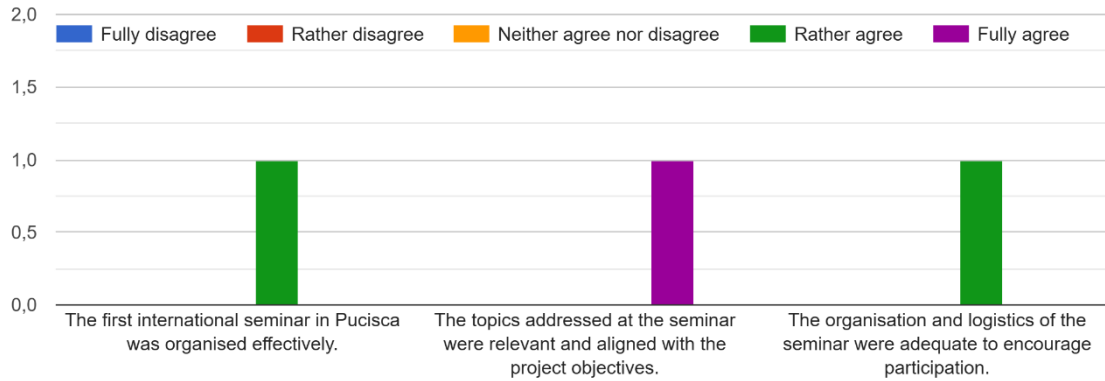
7. RockChain Curriculum: Production of a rock ornamental waste management curriculum using blockchain technology. Please rate the following aspects.



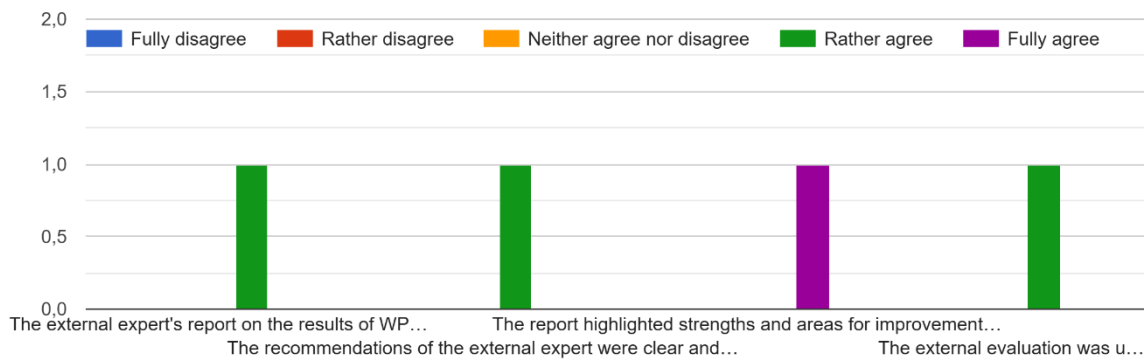
8. Production of the different linguistic versions of the curriculum and previous tasks of WP2. Please rate the following aspects.



9. First International Seminar in Pucisca (Croatia). Please rate the following aspects.



10. External expert report of WP2 Results. Please rate the following aspects.



11. Remarks. Please add any comments you consider appropriate about the tasks developed in this WP2.

1 respuesta

WP2 presents a well-structured logic chain: it starts with comparative studies, defines clear objectives and outcomes, establishes a sound methodology, validates real-world capacity through field research, and concludes with the development of the final curriculum. Its focus on adult learners aged 45 and above, combined with a progressive approach and distributed assessment, makes it well suited for both vocational education and training (VET) and adult education (ADU) contexts.

To further strengthen this work package, the following areas could be improved:

- (i) Reduce the reliance on abstract language when addressing blockchain concepts by incorporating more guided micro-cases that make the content more accessible;
- (ii) Make the alignment with European standards and practices more explicit, going beyond mere mentions to show clear integration; and
- (iii) Translate field research findings into concrete operational measures—such as defining minimum infrastructure requirements, developing a teacher upskilling plan, and offering low-tech alternatives for settings where digital tools are limited.

12. Please, tell us what kind of improvement you can suggest for the WP2:

1 respuesta

To enhance the applicability and impact of WP2, the following improvements are recommended:

Add a curriculum matrix that links learning outcomes, learning activities, expected evidence, and assessment criteria or rubrics. This would help training centers adapt and implement the curriculum more effectively according to their specific needs.

From the field research results (WP2-A5_EN_Field research v3), derive a "minimum viable" implementation framework, outlining:

Essential teaching competencies,

Basic connectivity and device requirements,

A support plan (technical and pedagogical), and

An alternative strategy for centers without dedicated software—such as low-tech or offline adaptations.

Improve accessibility and scaffolding for learners with low digital confidence, by integrating an in-tool glossary, step-by-step guides, and extended onboarding time to ease entry into the experience.

4. CONCLUZII

Raportul de evaluare externă acordă un scor general de satisfacție de 4 din 5, confirmând faptul că WP2 oferă o bază coerentă și relevantă la nivel european pentru traseul de formare RockChain. Evoluția de la colectarea dovezilor (prin studii comparative și cercetare de teren) la proiectarea pedagogică (rezultatele învățării, metodologia și curriculumul comun) este considerată logică și bine adaptată livrării formării în cadrul educației și formării profesionale pentru adulți.

Expertul extern a evaluat, de asemenea, WP2 ca fiind un pachet solid și bine structurat, evidențiind un „lanț logic” clar: acesta începe cu studii comparative, definește obiectivele și rezultatele învățării, stabilește o metodologie solidă, validează capacitatea din viața reală prin cercetare de teren și se încheie cu elaborarea curriculumului final. Expertul a apreciat în mod deosebit accentul pus pe cursanții adulți cu vârsta de 45+, combinat cu o abordare progresivă și o evaluare distribuită, aspecte care fac ca WP2 să fie bine adaptat atât contextelor VET, cât și celor de educație a adulților (ADU).

La nivelul livrabilelor WP2, cele mai puternice aspecte identificate sunt:

- relevanța temelor selectate — economia circulară, managementul deșeurilor și trasabilitatea — în cadrul lanțului valoric al pietrei naturale;
- coerența internă dintre obiectivele de învățare definite, rezultatele așteptate și metodologia propusă;
- orientarea practică a curriculumului, care sprijină învățarea structurată în grup, facilitată;
- seminarul internațional din Pučišća a fost, de asemenea, recunoscut ca un reper valoros, care a contribuit la alinierea partenerilor și la validarea direcției curriculumului.

Recomandări prioritare pentru viitor formulate de expertul extern al WP2:

În ceea ce privește îmbunătățirile, expertul a recomandat consolidarea aplicabilității practice și a transferabilității, în special în ceea ce privește conținutul legat de blockchain. Principalele sugestii au fost:

- reducerea utilizării limbajului abstract prin introducerea unor practici ghidate mai numeroase, care să facă conceptele mai ușor de înțeles;
- explicitarea mai clară a alinierii la standardele și practicile europene, demonstrând o integrare evidentă, și nu doar menționări sumare;
- transpunerea rezultatelor cercetării de teren în măsuri operaționale concrete, cum ar fi definirea cerințelor minime de infrastructură, elaborarea unui plan de perfecționare a cadrelor didactice și oferirea unor alternative low-tech/offline pentru contexte cu instrumente digitale limitate.



Implementarea recomandărilor în cadrul WP2:

- Reducerea limbajului abstract legat de blockchain: În cadrul curriculumului propriu-zis, blockchain-ul a fost abordat dintr-o perspectivă funcțională și aplicată (fără a necesita cunoștințe tehnice prealabile), iar formarea a fost realizată prin simulări ghidate și studii de caz din viața reală, culminând cu un proiect integrator care a consolidat învățarea prin aplicare experiențială.
- Explicitarea alinierii la standardele și practicile europene: WP2 a transformat alinierea la UE într-un principiu de proiectare explicit, nu într-o referință implicită. Rezultatele învățării au fost definite cu menționarea clară a alinierii. În paralel, curriculumul a integrat contextul politicilor și reglementărilor UE (de exemplu, referințe la economia circulară și guvernanta deșeurilor) ca parte a domeniilor de cunoaștere, sprijinind transferabilitatea între diferitele contexte ale țărilor partenere.
- Transpunerea cercetării de teren în măsuri operaționale: În mod concret, cercetarea de teren din WP2 a indicat un nivel inegal de pregătire digitală și instrumente limitate în unele centre, așa cum se observă în activitatea WP2-A5, astfel încât consorțiul a: (1) definit un set minim viabil de cerințe pentru livrarea formării (dispozitive de bază/conectivitate, plus acces la resursele RockChain); (2) integrat un model de facilitare condus de formator, cu practici ghidate și feedback continuu, pentru a sprijini nivelurile scăzute de încredere digitală; și (3) permis alternative low-tech/hibrid (demonstrații ale formatorului, lucru în grup asistat, activități etapizate), astfel încât formarea să poată fi desfășurată eficient chiar și atunci când accesul individual la dispozitive sau software specializat este limitat.

În concluzie, WP2 a fost validat ca o componentă cu valoare ridicată și suficient de matură pentru a avansa către etapa de dezvoltare și testare pilot — cu condiția implementării îmbunătățirilor recomandate. Aceste ajustări sunt punctuale și nu necesită modificări majore ale structurii WP2, ci au ca scop sporirea clarității, a transferabilității și a caracterului incluziv în cadrul mediilor reale de formare.