WP5-A3. Pilot RockChain Course implementation for entrepreneurs and professionals in the ornamental rock industry.

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Contents

1. INTRODUCTION

This document contains the results of activity WP5-A3 "Implementation of the RockChain pilot course in Aschaffenburg (Germany)".

This task involves the implementation of a specialization course focusing on the RockChain project. The course was held at the Stonemasonry School in Aschaffenburg, with the participation of partners DNV, KSK, CTM, and UNITBv. The results and materials developed as part of the project were presented to the approximately 30 participants, including master students of the Stonemasonry School Aschaffenburg, interested association members, and specialist teachers from vocational training institutions in the natural stone industry.

The successful implementation of the tasks required a face-to-face event and the preparation of the current report, which contains feedback from participants and pictures from the course, in order to review the implementation of the pilot course. A survey to evaluate the quality of the courses was distributed to participants to gather their opinions on the pilot courses.

2. PILOT COURSE IN ASCHAFFENBURG

2.1 Agenda

DNV Deutscher Naturwerkstein-Verband e.V.

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Programm 08.10.2025

Steinmetzschule Aschaffenburg, Schloßgasse 27, 63739 Aschaffenburg

Teil 2 - Pilotkurs

14.00 – 14.15 Uhr	Vorstellung des Lehrplans und der Online-Plattform (DNV, CTM)
14.15 – 15.00 Uhr	Praktische Vorführung zur Schulung von Abfallmanagern, Technikern und Fachleuten aus der Stein- und Baubranche (KSK Modul 1, UNITBv Modul 2, DNV Modul 3)
15.00 – 15.30 Uhr	Ausführliches Testen der Lern-App (CTM Module 4/5)
15.30 – 16.00 Uhr	Diskussionsrunde
16.00 Uhr	Ende der Veranstaltung

Zielgruppe: Ausbilder und Mitarbeiter in Naturstein-Fachbetrieben, Schüler und Lehrkräfte an Fachschulen/ Bildungseinrichtungen/ Technologiezentren, Mitarbeiter in Branchenverbänden/ Organisationen

Teilnahmegebühr: keine

DNV CTM Universitatea Transilvania din Brașov

Projekt-Mitglieder: 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).

Figure 1: Agenda of the pilot course.

2.2 Course content

The focus was on the EU project "Rock-Chain," which is being developed by DNV from Germany together with its partners KSK from Croatia, CTM from Spain, and UNITBv from Romania. The aim is to use blockchain technology to record all data throughout the life cycle of a natural stone product – from extraction and processing to reuse. This will make material flows traceable and enable resources to be used more efficiently.

The pilot course was held at the Aschaffenburg Stonemasonry School for prospective master craftsmen and their specialist teachers (15, included 6 from RockChain partnership), as well as other specialist teachers from other vocational schools, specifically from natural stone extraction and processing companies (13) (see list of participants), which took place on October 8, 2025, from 2:00 p.m. to 4:00 p.m. The project offers professionals from the stone and construction industry a training basis for transparently mapping the origin and processing of natural stone products. The course participants discussed how sustainability and digitalization can be combined in practice in the natural stone sector. Therefore, the pilot course had 22 participants who acquired the knowledge from the RockChain pilot course.

Reiner Krug, Managing Director of the DNV, explained the concept, according to which blockchain technology is used to digitally record natural stone blocks in the quarry and document all processing steps. The use of natural stone is optimized, and the generation of waste is reduced.

Figure 2: Picture. Presentation of Module 3.

A specially designed curriculum is intended to provide a suitable training basis. Reiner Krug presented this in detail.

Figure 3: Example of contents.

David Caparros Pérez and Carlos Martínez González from the Technology Centre for Mineral Resources (CTM) in Murcia, Spain, contributed their expertise in raw material analysis and digital process optimization. The results are being incorporated into a freely accessible online platform, an app, and a curriculum that will be used in training throughout Europe.

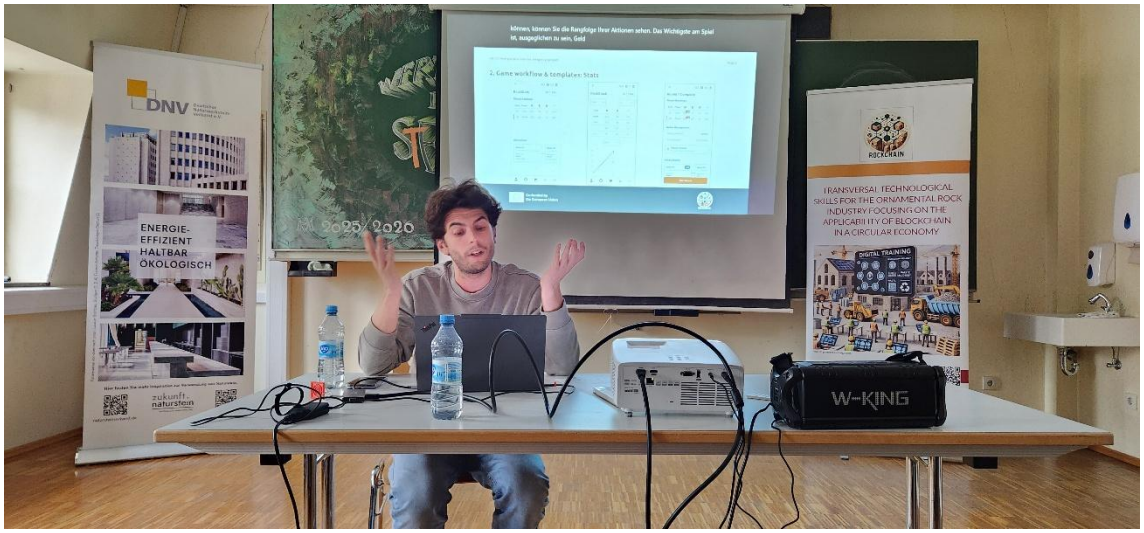


Figure 4: Picture. Presentation of Modules 4 and 5.

The OER platform, which is at the heart of the RockChain project, was presented as a tool for training industry professionals and aspiring stonemasons in LCA methods in the stone industry. Mr. Pérez emphasized that the platform provides structured, easily accessible content. By integrating this platform into the RockChain project, he highlighted the importance of collaboration, transparency, and knowledge sharing to promote circularity in the natural stone industry and drive innovation in this area.

Tamara Plastic, headmistress of the Pucisca Stonemasonry School in Croatia, provided insights into the practical teaching at her school. Teachers impart craft techniques as well as creative projects to keep the school and the stonemasonry trade in the public eye. She then presented the results from Module 1.

Figure 5: Picture. Presentation of Module 1.

Radu Muntean, professor at the University of Transylvania Brasov (UNITBv) in Romania, presented the results from Module 2 and supplemented them with their scientific research on the durability of natural stone in construction practice. He also encouraged the young participants to gain experience abroad through an Erasmus project.

Figure 6: Picture. Presentation of Module 2.

In the following presentation, **Reiner Krug** used Module 3 to emphasize that immutable blockchain registers can also help to document supply chains between quarries, processors, installers, and resellers, thereby preventing fraud and greenwashing. Digital material passports can also be used to record the properties, surface characteristics, and maintenance measures for each stone element. Digital twins for virtual simulations, predictive maintenance plans, and portals for collaboration between architects, contractors, and recovery companies as a common interface for planning demolition work are also essential cornerstones for the efficient use of natural stone.

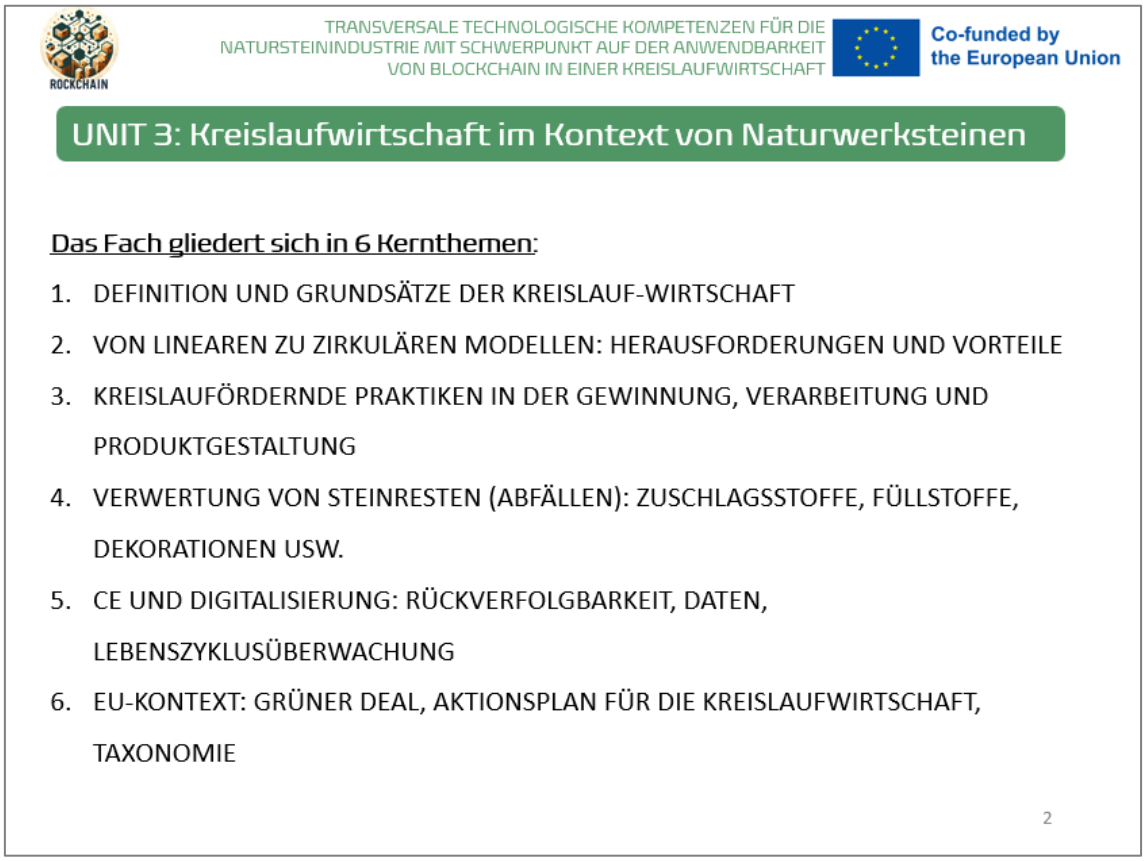


Figure 7: Example of contents.

Finally, participants interactively tested the mobile app to better understand and comprehend blockchain technology.

Figure 8: Picture. Using the RockChain App.

The historic location also demonstrated that the circular economy can be more than just theory: during a subsequent tour of Johannisburg Castle, built from red Main sandstone, school principal Ulrike Ader explained the connection between tradition and the future – in line with the project's goal of implementing sustainability in the natural stone trade.

Figure 9: The participants in front of Johannisburg Castle: The building is one of the most important residential buildings of the late German Renaissance.

2.3 Participation

The pilot course count on master craftsmen and their specialist teachers (15, included 6 from RockChain partnership), as well as other specialist teachers from other vocational schools, specifically from natural stone extraction and processing companies (13) (see list of participants), therefore, the pilot course had 22 participants who acquired the knowledge from the RockChain course.

3. QUALITY ASSESSMENT

3.1 Evaluation questionnaire

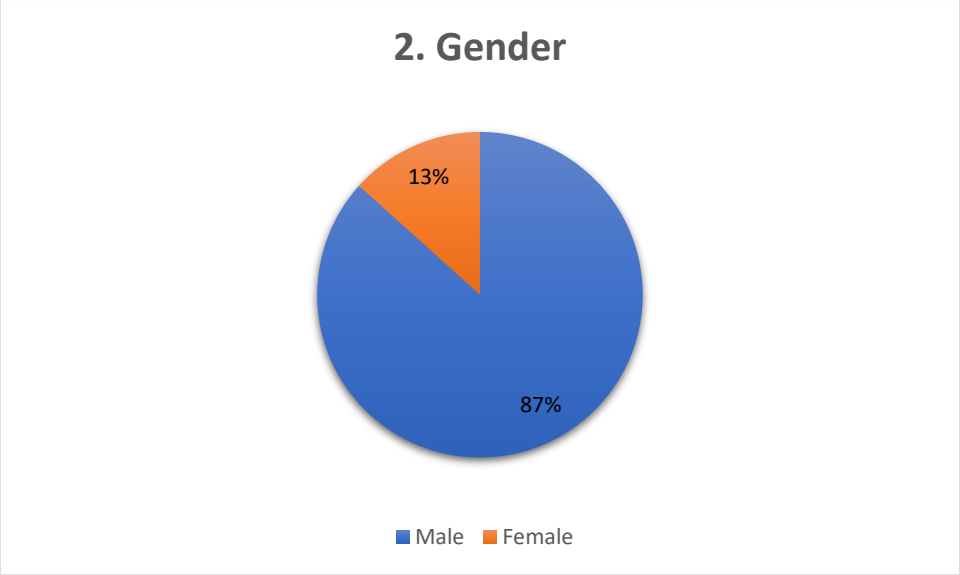
After the pilot course was completed, a paper evaluation questionnaire was distributed to all participants who had actively taken part in the courses. This questionnaire was used to obtain comprehensive feedback and insightful perspectives from the participants, thus enabling an evaluation of the courses. All responses were anonymous.

3.2 Results of the questionnaire

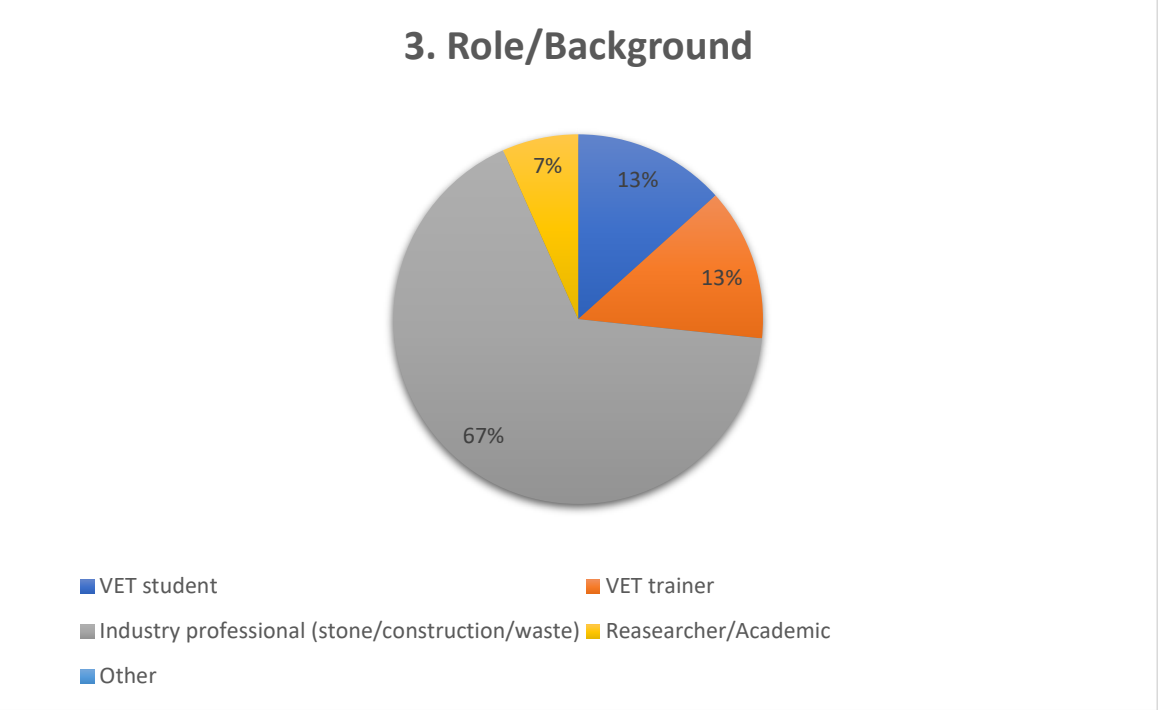
1. Where did you assist to the course?

100% from Germany.

2. Gender



3. Role/Background



4. How did you attend to the course?

100% in person.

5. Previous familiarity with blockchain and circular economy

Average: 2,87/5

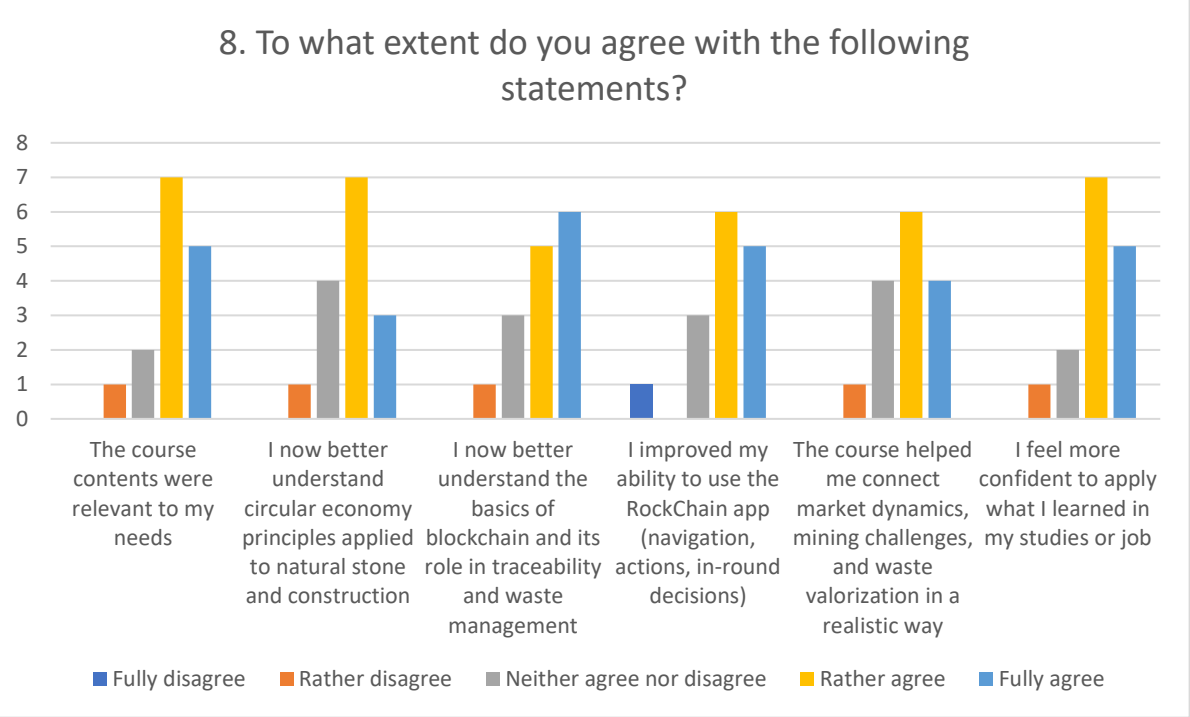
6. Overall, how satisfied were you with the training activity?

Average: 3,93/5

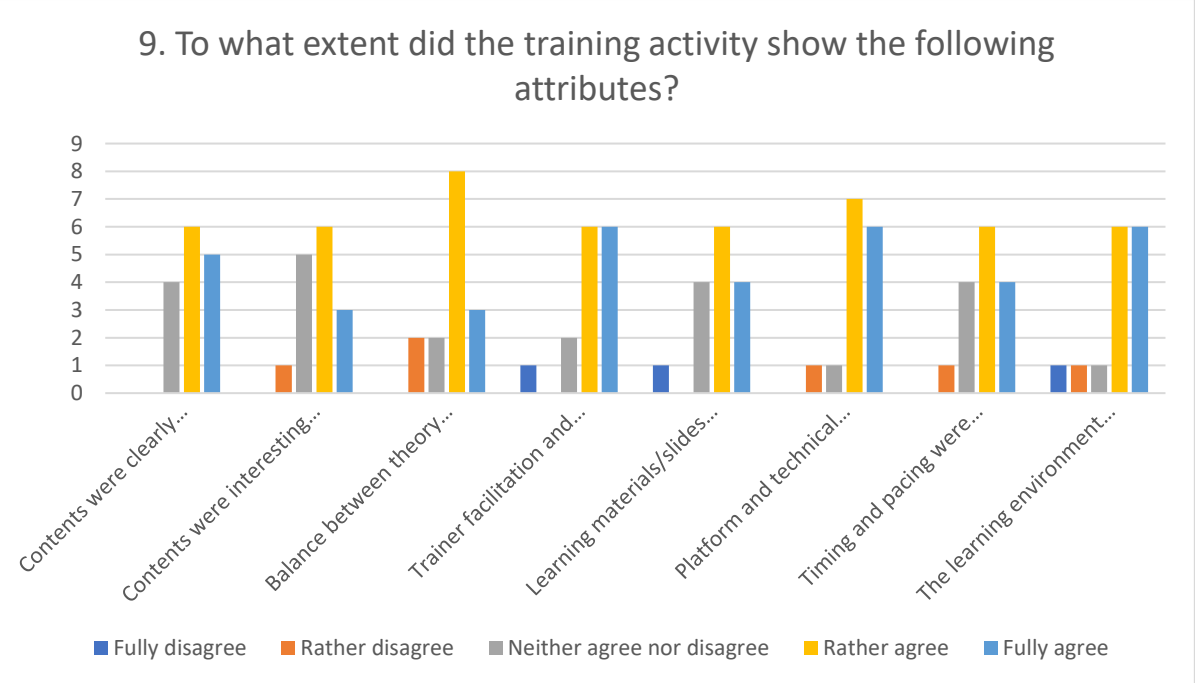
7. Would you recommend this pilot activity to your colleagues or classmates?

Average: 4,07/5

8. To what extent do you agree with the following statements?



9. To what extent did the training activity show the following attributes?



10. Usability of RockChain app during the course

Average: 3,93/5

11. How clear were the in-app round mechanics (timer, market, mining, recycling)?

Average: 7,33/10

12. What aspects of the activity did you find most interesting?

More information in the conclusions.

13. Where could it be improved?

More information in the conclusions.

14. Do you have any additional comments, suggestions or opinions about the pilot activity?

More information in the conclusions.

4. CONCLUSIONS

The WP5-A3 pilot course in Aschaffenburg (Germany) provided a solid, practice-oriented setting to validate the integrated RockChain outputs from WP2 (curriculum), WP3 (training materials) and WP4 (OER platform and app) with a mixed audience closely connected to the natural-stone value chain. The course brought together prospective master craftsmen and specialist teachers, additional vocational-school teachers, and DNV association members from extraction and processing companies, creating a useful space to test how the content performs across both training and industry perspectives.

Overall evaluation results indicate that participants had moderate prior familiarity with the topic, while reporting good satisfaction and strong willingness to recommend the activity, suggesting that the course sequence and facilitation made the content accessible and relevant for non-specialist profiles. Feedback also confirms that the RockChain App is a particularly effective engagement driver and learning anchor, supporting comprehension of core concepts through interaction; the usability ratings and the reported clarity of the in-app mechanics show that the app is already suitable for guided classroom use.

Beyond the technical and training validation, the pilot also reinforced the broader narrative value of RockChain: linking tradition and craft with modern sustainability and digital traceability. The location-based component and the discussions on circularity helped illustrate that circular-economy thinking can be grounded in real heritage and built-environment examples, strengthening the “meaning” and transferability of the learning experience for participants.

Looking ahead, the main improvement direction is to increase practical time (or provide follow-up sessions) so that participants can deepen hands-on work with the app and translate the concepts into concrete workflows and teaching/use-case scenarios. These inputs will support the final refinement of materials and the RockChain OER platform before the project’s final dissemination milestone and wider release.