



Task O3/A2

BIMstone PILOT COURSES IMPLEMENTATION: ENVIRONMENT TEST AND TECHNICAL IMPROVEMENTS

O3. BIMstone OPEN EDUCATIONAL RESOURCE (OER)



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COAMU



Centro Tecnológico
del mármol, piedra y materiales



ROMANIA
GREEN
BUILDING
COUNCIL

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1. DESCRIPTION OF THE TASK

This report O3/A2 “*Pilot BIMstone Course implementation: environment test and technical improvements*” is included in the Intellectual Output 3 “*BIMstone Open Educational Resource*” which is based on the implementation in technical courses and trainings on specialisation focused on the BIMstone project. Partners of the Project have implemented pilot courses and used current courses based on the products of the project, which was also served as evaluating products for possible improvement before the end of the project.

The feedback obtained from experts during these courses and events was very useful to the improvement of the products of the project, mainly the Production of the OER and pilot courses, both quality assessment of technical content and pedagogical approach and IT quality assessment of ICT Based.

The beta versions of those products were shown to experts and teachers, to be checked and used in during or after the courses. It was necessary because beta versions to correct them, as well as sometimes the trainings are carrying out in facilities where there is not online connection.

Finally, the consortium has also scheduled courses, trainings and other events (workshops, meetings, seminars, etc.) beyond the end of the project in order to guarantee the sustainability of the project.

2. DURING THE PROJECT. EXPERTS, ENTITIES, COURSES AND OTHER EVENTS WHERE WAS CONSULTED ON BIMstone MULTIMEDIA MATERIALS, BIMstone LEARNING APPLICATION AND OECP

2.1. COURSES AND TRAININGS

Table 2.1.1. Courses or trainings where BIMstone project was shown

DNV

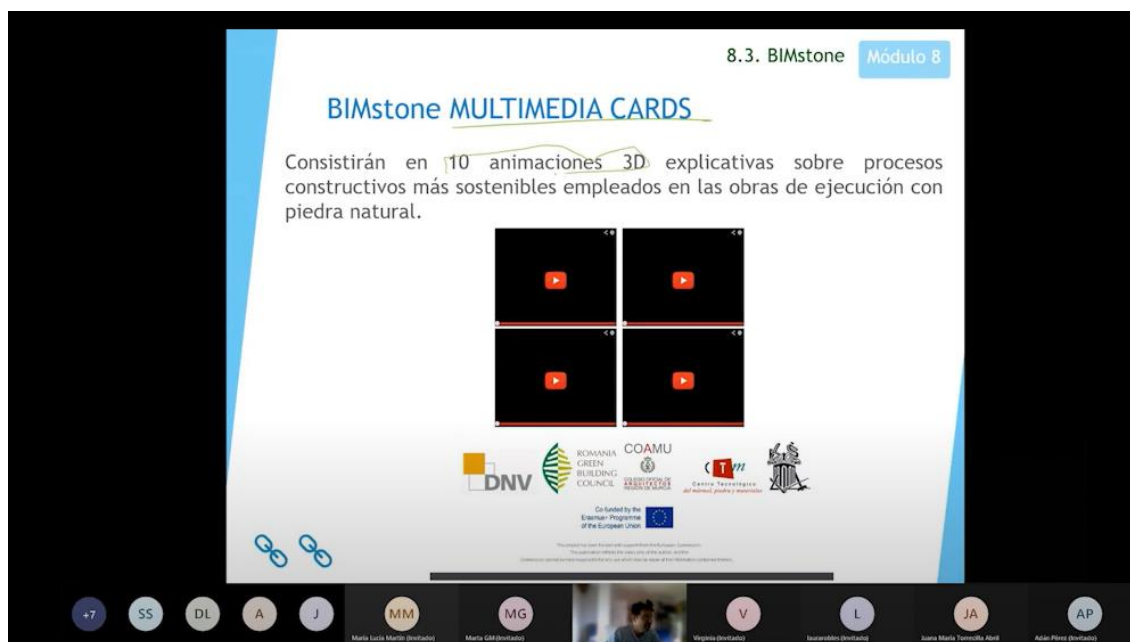
Name of the course/training	Venue	Date/Period	Number of students
Natural Stone Seminar "Paving and slab coverings made of natural stone"	Wuerzburg (Germany)	10/12/2019	21
Natural Stone Competence Center Wuerzburg // ERASMUS PROGRAM SEMINAR	Wuerzburg (Germany)	17/09/2019	9

COAMU

Name of the course/training	Venue	Date/Period	Number of students
CURSO "INTERVENCIÓN DEL PATRIMONIO HISTÓRICO"	Murcia – Online	3, 10, 17 y 24/05/2021	40
CURSO "LA METODOLOGÍA BIM Y SUS APLICACIONES EN LA REHABILITACIÓN"	Murcia – Online	23-24/06/2021	25
TALLER PRÁCTICO HERRAMIENTA UNIFICADA LÍDER-CALENER	Online	14, 16, 21, 23/04/2021	25
CURSO ONLINE EXPERTO EN REHABILITACIÓN. MÓDULO 2. INTERVENCIÓN EN FACHADAS	Online	26/10/2020	60
CURSOS BIMGREEN GRATUITOS Y CON CERTIFICACIÓN	Alicante-Murcia-Cartagena	06/2020	>50
INTRODUCCIÓN A LA METODOLOGÍA BIM Y SU APLICACIÓN EN LA LICITACIÓN PÚBLICA	Online	3, 5, 7, 10, 12 y 14/02/2020	>50

CTM

Name of the course/training	Venue	Date/Period	Number of students
APLICACIÓN PRÁCTICA DE NUEVAS TECNOLOGÍAS BIM EN LA PRESCRIPCIÓN TÉCNICA DEL IMPACTO AMBIENTAL DE PRODUCTOS Y SISTEMAS CONSTRUCTIVOS	Murcia - Online	9-16/11/2020	30
APLICACIÓN PRÁCTICA DE NUEVAS TECNOLOGÍAS BIM EN LA PRESCRIPCIÓN TÉCNICA DEL IMPACTO AMBIENTAL DE PRODUCTOS Y SISTEMAS CONSTRUCTIVOS	Cartagena - Online	16-20/11/2020	30
APLICACIÓN PRÁCTICA DE NUEVAS TECNOLOGÍAS BIM EN LA PRESCRIPCIÓN TÉCNICA DEL IMPACTO AMBIENTAL DE PRODUCTOS Y SISTEMAS CONSTRUCTIVOS	Alicante - Online	23-27/11/2020	30
DECLARACIÓN AMBIENTAL DE PRODUCTO BASADA EN EL ANÁLISIS DE CICLO DE VIDA (ACV) DE PRODUCTOS Y SISTEMAS CONSTRUCTIVOS	Murcia - Online	9-11/09/2020	30
DECLARACIÓN AMBIENTAL DE PRODUCTO BASADA EN EL ANÁLISIS DE CICLO DE VIDA (ACV) DE PRODUCTOS Y SISTEMAS CONSTRUCTIVOS	Cartagena - Online	14-16/09/2020	30
DECLARACIÓN AMBIENTAL DE PRODUCTO BASADA EN EL ANÁLISIS DE CICLO DE VIDA (ACV) DE PRODUCTOS Y SISTEMAS CONSTRUCTIVOS	Alicante - Online	21-23/10/2020	30



8.3. BIMstone Módulo 8

BIMstone MULTIMEDIA CARDS

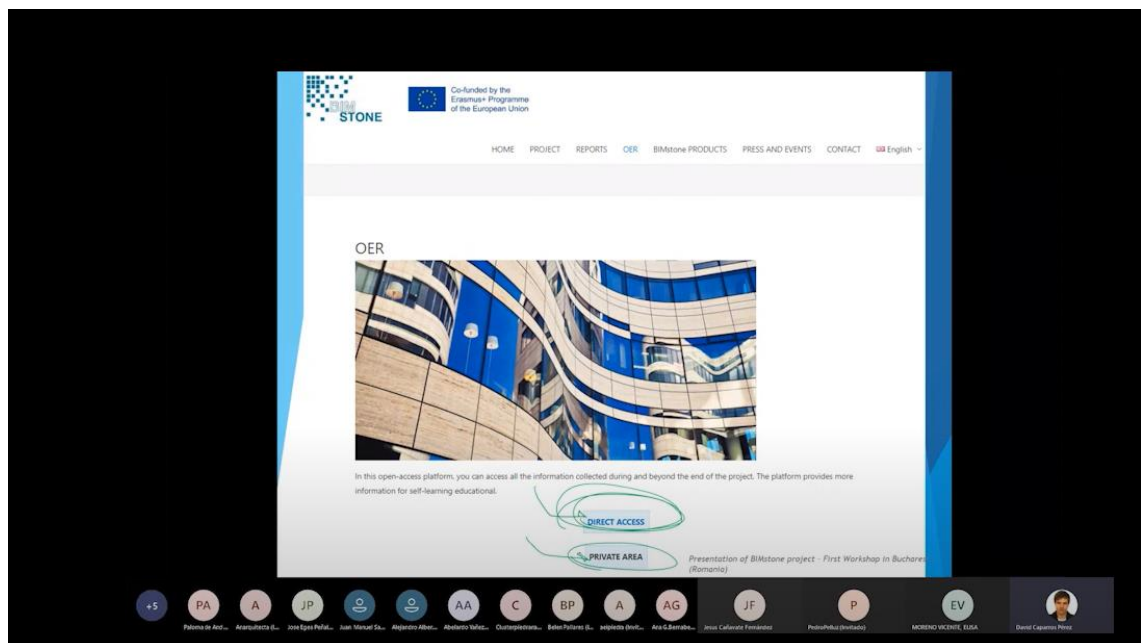
Consistirán en 10 animaciones 3D explicativas sobre procesos constructivos más sostenibles empleados en las obras de ejecución con piedra natural.

The slide features four video thumbnails and logos for DNV, ROMANIA GREEN BUILDING COUNCIL, COAMU, and Centro Tecnológico del Mármol, Piedra y Materiales. It also includes the Erasmus+ logo and a Creative Commons license icon.

16 – 20 November 2020.



23 – 27 November 2020.



9 – 16 November 2020.

KSK

Name of the course/training	Venue	Date/Period	Number of students
BIM technology – introduction and basic terminology	Klesarska skola	04/05/2019	16
BIM technology – introduction and basic terminology	Klesarska skola	14/05/2019	7
BIM technology – exploring examples	Klesarska skola	24/04/2020	16
BIM technology – exploring examples	Klesarska skola	30/04/2020	7
BIM technology in stone sector	Klesarska skola	04/12/2020	16
BIM technology in stone sector	Klesarska skola	11/12/2020	7
BIM technology in stone sector	Klesarska skola	05/02/2021	7

RoGBC

Name of the course/training	Venue	Date/Period	Number of students
OBJECTIVES AND RESULTS OF BIMSTONE PROJECT	BIM & LCA Workshop of new interactive BIM- learning methods applied to sector of Stone products	07/11/2019	25
BIM INSTRUMENTS IN-BETWEEN THE CREATIVE AND STANDARDIZES DESIGN	International Session of Scientific Communications FAI2019	08/11/2018	65
ABORDĂRI DE PROIECTARE PENTRU CLĂDIRI SUSTENABILE ÎN ROMÂNIA (DESIGN APPROACHES FOR SUSTAINABLE BUILDINGS IN ROMANIA)	International Conference EURO-Conferinte 2019	14/05/2019	200
SUSTENABILITATE PRIN BIM (SUSTAINABILITY WITH BIM)	International Conference BIMCON2019	23/05/2019	95
LIFE CYCLE FOR SUSTAINABLE DESIGN	Architectural Eco-Technology (Course within Ion Mincu University of Architecture and Urbanism, Bucharest	25/05/2019	92



GREEN DESIGN PRINCIPLES	"Green Building Professional" - Certification & Training Program	27/03/2020	15
GREEN DESIGN PRINCIPLES	"Green Building Professional" - Certification & Training Program	30/10/2020	20
RESEARCH FOR SUSTAINABLE USE OF BIM INSTRUMENTS	International Conference - Pandemic Interior Architecture	04/12/2021	65
GREEN DESIGN PRINCIPLES	"Green Building Professional" - Certification & Training Program	26/03/2021	15

2.2. OTHER EVENTS

Table 2.2.1. Other events (workshops, meetings, seminars, etc.) where BIMstone project was shown

DNV

Name of the evento	Venue	Date/Period	Number of attendants
DNV Member Meeting	Cologne (Germany)	06/07/2019	40
Natural Stone Seminar "Paving and slab coverings made of natural stone"	Wuerzburg (Germany)	10/12/2019	21
Natural Stone Workshop	Wuerzburg (Germany)	13/11/2019	7
Natural Stone Workshop	Wuerzburg (Germany)	06/11/2018	9
DNV Member Meeting (Online)	Wuerzburg (Germany)	06/11/2020	32
DNV Member Meeting	Wuerzburg (Germany)	31/07/2021	26



BIMstone project in the DNV member meeting (06/07/2019).



BIMstone project in the Natural Stone Seminar in Würzburg (Germany) (10/12/2019).

Programm:

Dienstag, 10.12.2019

09.00 *Begrüßung*

09.15 **Auswahl von Naturstein für Pflaster- und Plattenbeläge**
Reiner Krug

10.00 **Neuausgabe DIN 18318 Verkehrswege**
Reiner Krug

10.45 *Pause*

11.15 **Technische Richtlinien für Pflaster- und Plattenbeläge**
Reiner Krug

12.00 **Planung von Pflaster- und Plattenbelägen - Grundlagen**
Erich Lanicca

13.00 *Mittagspause*

14.00 **Planung von Pflaster- und Plattenbelägen - Bauweisen**
Erich Lanicca

16.00 *Pause*

16.30 **Anforderungen an ungebundene Fugen und deren Prüfung**
Andreas Heiko Metzging

17.30 *Diskussion*
Ende des Seminars





Neugestaltung Markt, Bad Lauchstädt
Preisträger Deutscher Naturstein-Preis 2018
Foto: Helge Mundt, Hamburg

Agenda of the Natural Stone Seminar in Wurzburg (Germany) (10/12/2019).

NATURAL STONE COMPETENCE CENTRE

14. WORKSHOP ON NATURAL STONE

06th Nov. 2018 IN WÜRZBURG/GERMANY

AGENDA

- 1 Opening of the meeting at 09:00 am
- 2 Adoption of the agenda
- 3 Product standards for natural stone - CEN/TC 178
- Revision of EN 1341, EN 1342 and EN 1343;
- 4 Product standards for natural stone - CEN/TC 246
- Revision of EN 1469, EN 12057, EN 12058;
- 5 Testing of natural stone units
- Natural stone and agglomerated stone test methods
- Revisions of testing standards
- 6 European Construction Products Directive
- Guideline for Declaration of Performance DoP and
CE-Marking for natural stone products
- 7 National application standards
- 8 National and international research projects
- report of new European research projects
SAFEPLACE and BIMSTONE
- 9 Sustainability of natural stone
- New DNV-study on sustainability of flooring
- 10 Radioactivity in natural stones
- National implementation of Article 75 of Directive
2013/59 / Euratom
- 11 Crystalline silica dust
- Revision of the Carcinogens and Mutagens Directive
- 12 Any other business



BIMstone project in the Natural Stone Workshop in Wurzburg (Germany) (06/11/2018)

COAMU

Name of the event	Venue	Date/Period	Number of attendants
COAMU General Assembly	Murcia	12/2019-2020-2021	>100
Fair "Week of quality"	Murcia	8-10/04/2019	>2500
Workgroup organized by Promotion Counseling of the Region of Murcia	Murcia	09/2019	10



08/04/2019. Murcia (Spain).



26/03/2020. Murcia (Spain).

CTM

Name of the event	Venue	Date/Period	Number of attendants
2 nd Transnational of ESSENSE project	Yecla, Murcia (Spain)	08/04/2019	15
Plan Contract Región de Murcia	Cehegín, Murcia (Spain)	25/04/2019	33
4 th International Meeting of SafePlace project	Würzburg (Germany)	02-03/05/2019	14
1 st Workshop of UrbanBIM project	Sevilla (Spain)	15/05/2019	79
2 nd Transnational Meeting of UrbanBIM project	Sevilla (Spain)	16/05/2019	13
Technical day in Marmomac Fair 2019	Verona (Italy)	25-28/09/2019	69000
Semana de la Ciencia y la Tecnología 2019	Murcia (Spain)	08-10/11/2019	28000
1 st Transnational Meeting of WinSTONE project	Cehegín (Spain)	19/11/2019	9
1 st Transnational Meeting of CircularBIM project	Alicante (Spain)	02/12/2019	11
1 st Transnational Meeting of BIMhealthy project	Cehegín (Spain)	03/12/2019	22



08/04/2019. Yecla, Murcia (Spain).



25/04/2019. Cehegín, Murcia (Spain).



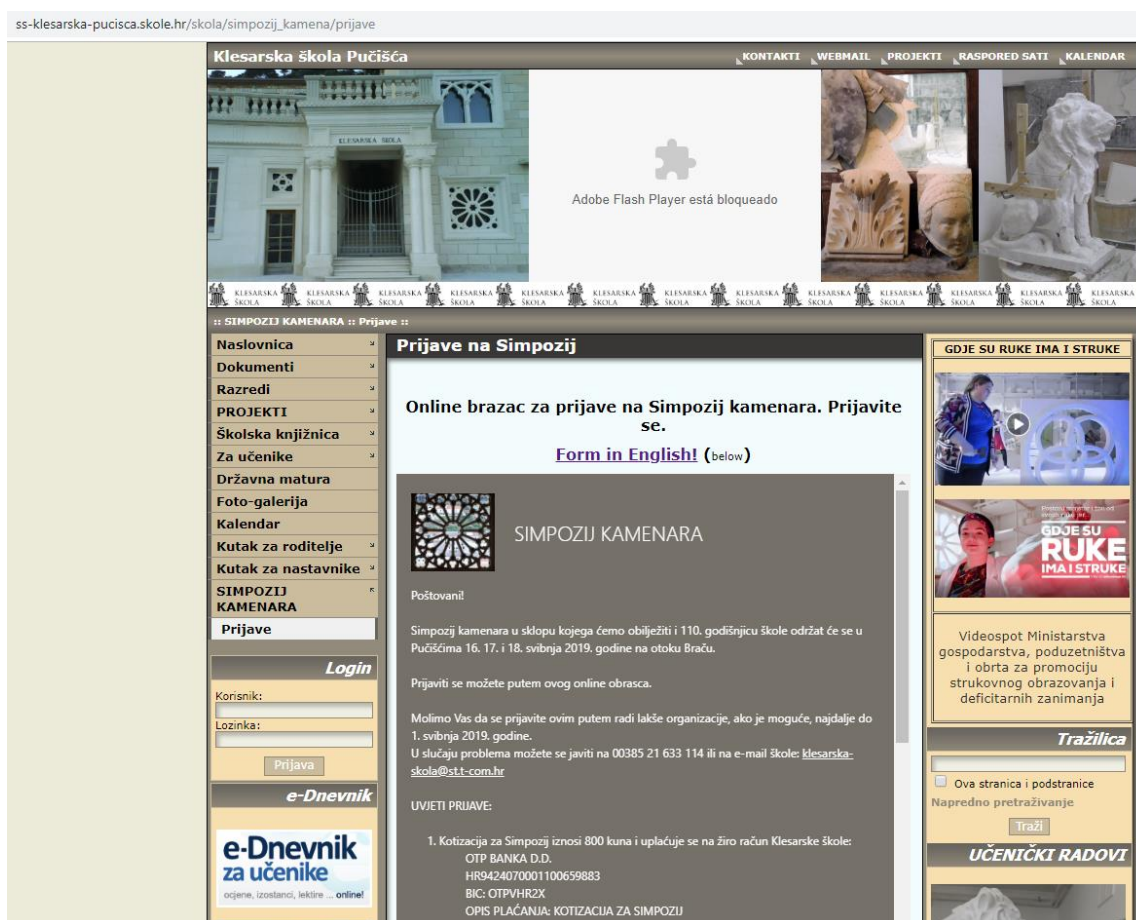
28/09/2019. Verona (Italy).



27/10/2018. Murcia (Spain).

KSK

Name of the event	Venue	Date/Period	Number of attendants
Internatational Stone Symposium	Pučišća	17/05/2019	80
Ambientura summer school	Pučišća	10/9/2021.	35



The screenshot shows the website for Klesarska škola Pučišća. The main content area features a registration form for the 'SIMPOZIJ KAMENARA' symposium. The form includes a title 'Prijave na Simpozij', a sub-header 'Online brazac za prijave na Simpozij kamenara. Prijavite se.', and a link to a 'Form in English! (below)'. The form text states that the symposium will be held on May 16-17 and 18, 2019, on Braču Island. It provides contact information for the school and lists the registration fee of 800 kuna. The website also features a navigation menu, a sidebar with various links like 'Naslovnica', 'Dokumenti', and 'Prijave', and a video player on the right side.

XXIII Symposium of stone masons at Klesarska skola website.

RoGBC

Name of the event	Venue	Date/Period	Number of attendants
1 st Transnational Meeting of UrbanBIM project	Bucharest (Romania)	27/11/2018	12
2 nd Transnational Meeting of UrbanBIM project	Sevilla (Spain)	16/05/2019	13
1 st Transnational Meeting of CircularBIM project	Alicante (Spain)	02/12/2019	11



BIMstone project at the First Transnational Meeting of UrbanBIM Erasmus+ project in Bucharest (Romania) (27/11/2018)



BIMstone project at Second Transnational Meeting of UrbanBIM Erasmus+ project in Seville (Spain) (16/05/2019).

3. BEYOND THE END OF THE PROJECT

Partners of the project will use the final version of the BIMstone Learning Application in their courses beyond the end of the project. In the following tables are shown some examples scheduled.

Table 3.1.1. Courses or trainings where BIMstone project results will be shown

Name of the event	Venue	Date/Period	Number of attendants
Ciclo Rehabilitación de Edificios, Regeneración Urbana y Gestión y tramitación de ayudas	Murcia – Online	2021	>25
Name of the event	Venue	Date/Period	Number of attendants
Lessons in 3rd grade: Introduction in BIM in stone sector	Klesarska škola	1st semestar of school year 2021./2022.	5
Lessons in 4rd grade: Introduction in BIM in stone sector	Klesarska škola	1st semestar of school year 2021./2022.	7
Ambientura Summer school for architects and sculptors	Klesarska škola	September of 2022.	25
Cooperation of diferent level education concerned in stone sector	Faculty of civil engineering in Split	April 2023.	40



Name of the event	Venue	Date/Period	Number of attendants
LIFE CYCLE FOR SUSTAINABLE DESIGN	Architectural Eco-Technology (Course within Ion Mincu University of Architecture and Urbanism, Bucharest)	2021/2022	-
GREEN DESIGN PRINCIPLES	"Green Building Professional" - Certification & Training Program	24/09/2021	-

Table 3.1.2. Other events (workshops, meetings, seminars, etc.) where BIMstone project results will be shown

Name of the event	Venue	Date/Period	Number of attendants
Final International Seminar (Online)	Wuerzburg (Germany)	22/06/2021	14
Marmomac Fair 2021	Verona (Italy)	09/2021	

Name of the course/training	Venue	Date/Period	Number of students
Final International Seminar of BIMhealthy project	Murcia (Spain)	09/2021	-
Marmomac Fair 2021	Verona (Italy)	10/2021	-

Name of the event	Venue	Date/Period	Number of attendants
Presentation of Klesarska škola in elementary school all around Croatia	Croatia	October 2021. – May 2022.	3000
Presentation of Klesarska škola in elementary school in countries in region	Bosnia, Slovenia, Serbia, North Macedonia, Montenegro	February 2022. – May 2022.	250
International stone symposium	Klesarska škola	May of 202.	40
Presentation of new curriculum and new program for Stonemason-specialist of carving and stoneplacing	Klesarska škola	September 2024.	120

4. QUESTIONNAIRE


A specific questionnaire was created for checking and improving the course curricula, the training activities.

This training activities was implemented with the aim at providing assessment by education staff about the content of the curricula and the training material produced during the project.

The questionnaires delivered to attendees included a generic question to propose the comments they consider necessary to improve the quality of all BIMstone project products.

Below is the questionnaire carried out for the evaluation of this project and its products.



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

Feedback questionnaire of BIMstone pilot courses

Project code: 2018-1-DE02-KA202-005146

***Obligatorio**

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

1 2 3 4 5

Not satisfied at all Very satisfied



2. To what extent do you agree or disagree with the following statements? *

	Fully disagree	Rather disagree	Neither agree nor disagree	Rather agree	Fully agree
Training activity's contents were of my interest.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel now better informed on various aspects related to the stone sector.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I now better understand the benefits of the BIMstone project approach.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel that I have broaden my knowledge, competences and skills regarding BIM technologies.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



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

	Fully disagree	Rather disagree	Neither agree nor disagree	Rather agree	Fully agree
Contents were clearly understandable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Contents were interesting and motivating.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Training activity was well-organised and well-structured.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall atmosphere was pleasant.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



4. Do you have any further comments and recommendations on the BIMstone training activity? What could have been done better? (1: Inefficiently, 5: Efficiently) *

	1	2	3	4	5
The co-ordination and the secretariat functioned:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The information you received before the training activity, intended to facilitate your participation was:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The organisation of the facilities used for the training activity were:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How was the available technical equipment during the training activity?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The agenda of the training activity was:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The material distributed during the training activity was:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The way you were received at the training activity was:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



At the start of the training activity, the themes, the time available and the procedures were:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The time management of the training activity was:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The working conditions for the training activity were:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The working atmosphere for the training activity were:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The general management of the training activity was:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The management of the development of the work in the training activity was:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please, tell us what kind of improvement you can suggest:

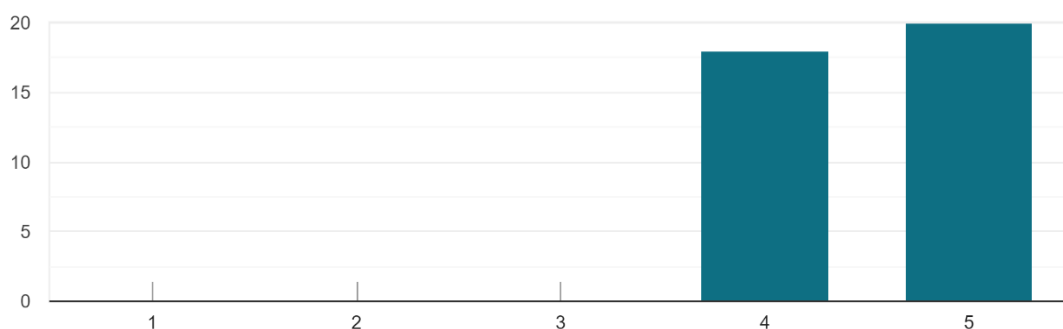
Tu respuesta _____



4.1. QUESTIONNAIRE RESULTS

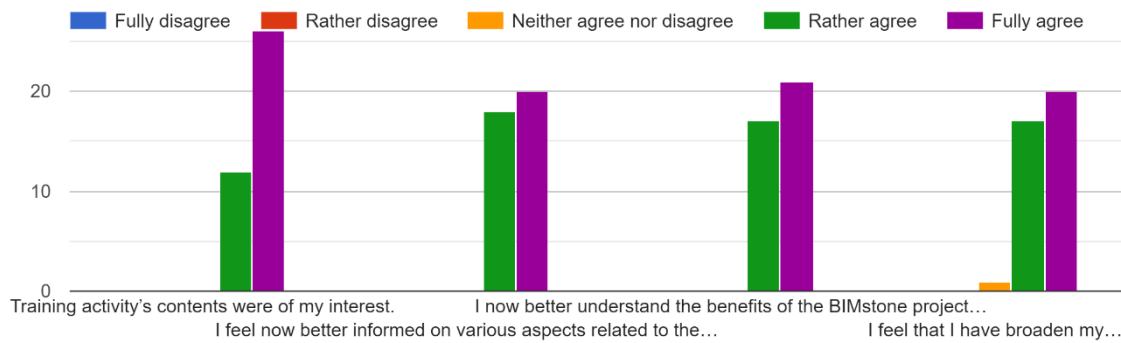
1. Overall, how satisfied were you with the training activity?

38 respuestas

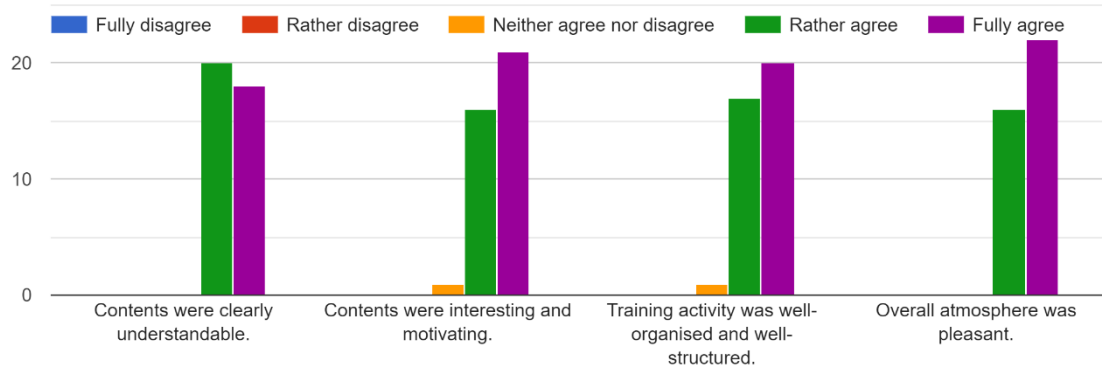




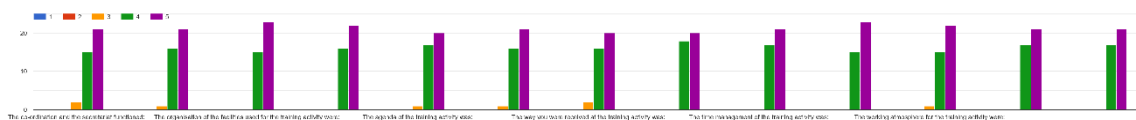
2. To what extent do you agree or disagree with the following statements?



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



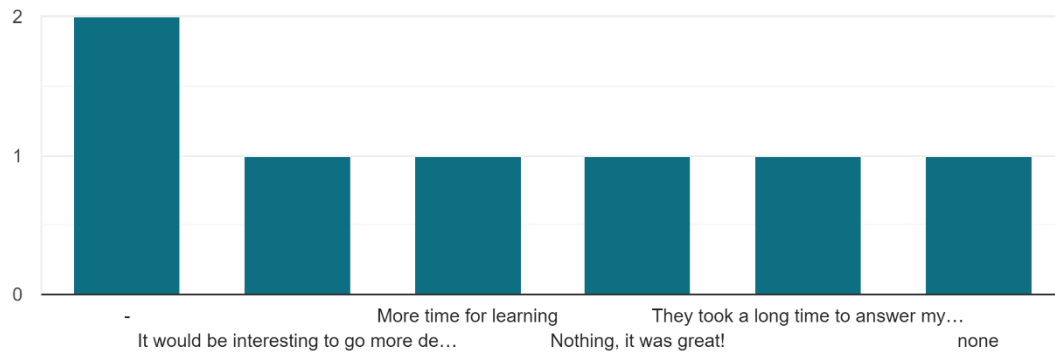
4. Do you have any further comments and recommendations on the BIMstone training activity? What could have been done better? (1: Inefficiently; 5: Efficiently)





Please, tell us what kind of improvement you can suggest:

7 respuestas



-

-

It would be interesting to go more deeply into some topics

More time for learning

Nothing, it was great!

They took a long time to answer my questions by email. I would have liked to have my questions answered sooner.

none

4.2. CONCLUSIONS

According to the data obtained from the questionnaires carried out in the training activities, it can be concluded that the results have been really positive.

From the surveys collected, more than 90% of the total considered that all aspects related to the activity (contents, organisation, materials used, etc.) were good or very good.