

# OUTPUT T3.5

## Pilot Action (P13)

### Sacidava - Romania

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**Title** Increasing the Visibility of the  
Roman Danube Limes

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## 1. Introduction

This paper summarises the various efforts taken and activities organised in the framework of the project Living Danube Limes contributing to the increase of visibility and conveyance of the Roman past at the individual national project pilot sites (listed downstream the Danube): Gunzenhausen (Germany), Comagena/Tulln in combination with Cannabiaca/Zeiselmauer (Austria), Iža (Slovakia), Matrica/Százhalmobatta (Hungary), Ad Labores/Kopačevo (Croatia), Lederata/Ram (Serbia), Bononia/Vidin in combination with Sinagovtsi (Bulgaria) and Sacidava (Romania).

## 2. General Information on the Pilot Site

The archaeological site of Sacidava (the Roman fortification from the II-VII century) is placed on the right side of Danube, in the Dobrogea region, Constanța County. The distance to the closest villages, Rasova or Dunăreni is 10km, with no direct connection. Only dirt roads for agriculture support the access to the site. The site is placed on a plateau, on the limit of a cliff with a difference of height to the Danube of 50m. It is surrounded by wild steppe vegetation, characteristic for the arid temperate climate of Dobrogea.

## 3. Documentation of Selected Visibility Measure(s) Implemented On-Site

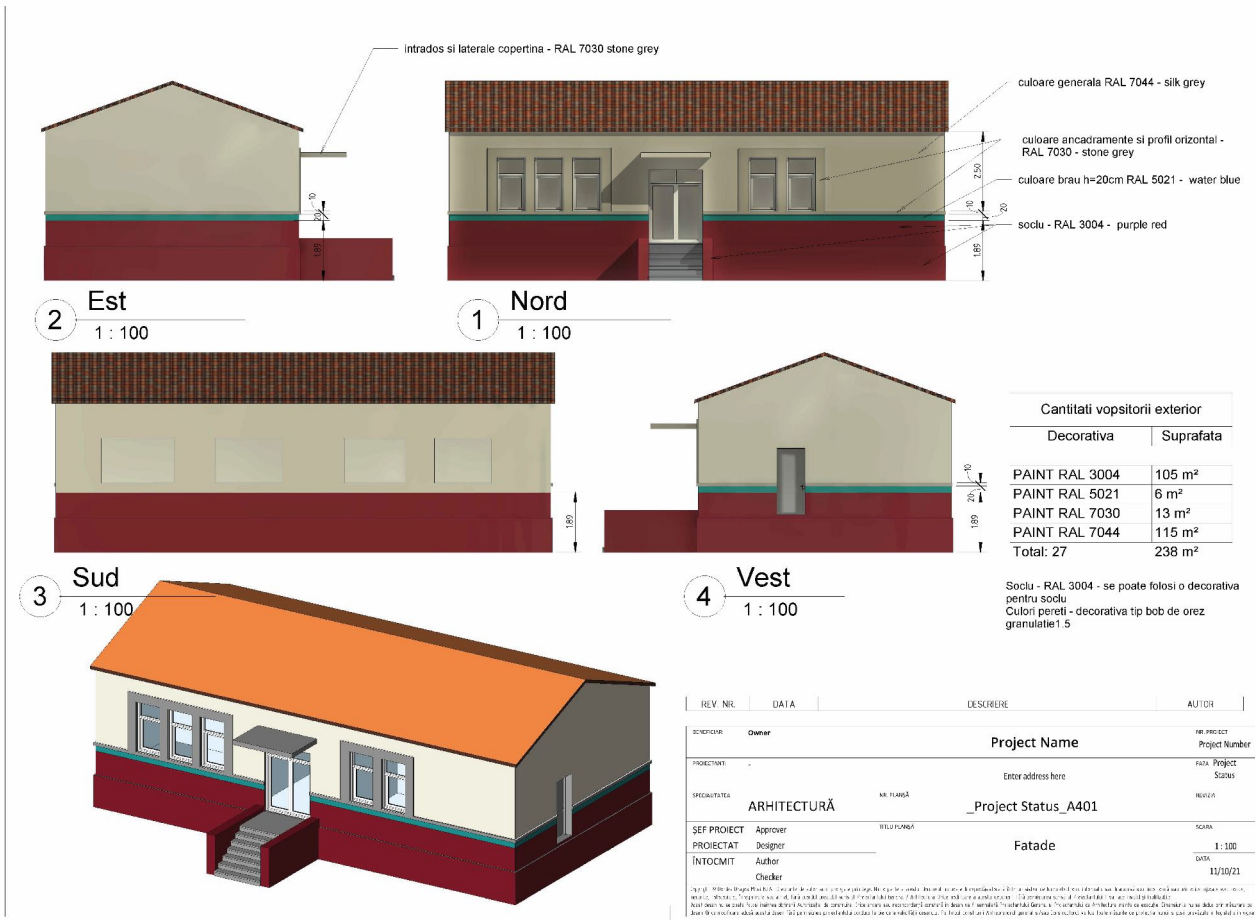
As the Romanian pilot site finds itself in a very remote zone, but also in a very authentic and original natural landscape, the most suitable visibility measures were implemented in the closest village. This decision was determined by the concept of preserving the authentic atmosphere as part of the historical heritage.

UAUIM has made a **conversion project** on the ancient kindergarden of Rasova, transforming the old building in a small History Museum, dedicated to the pilot site of Sacidava. In the future, the museum shall host the artefacts discovered on the archaeological site of Sacidava and all information dedicated to visitors.

**Contextualization:** One of the most important parts of the visibility strategy represents in the contextualization of the pilot site of Sacidava in the large territorial scale of the Roman frontier. The understanding of each single site is possible only in connection with the entire defensive system. Therefore, UAUIM & INCDT has produced the exhibition: The Romanian Danube Limes, based on the research materials from T1 - *Characterization of the Danube Limes*. During the workshop the exhibition has been installed in the small museum on Rasova.

**3D Visualization:** as the pilot site is almost unexplored and the access is very difficult, a small hologram of the site has been produced to enable the 3D visualization of the archaeological site.

**3D Reconstruction:** building small physical models, in different scales, of the pilot site, to enhance understanding of the ancient constructions



Conversion project for the Museum in Rasova

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## 4. Visibility Workshop

Following the previous scenarios and research conclusions the UAUM team has decided to work on the following direction: the creation of a small museum in Rasova in order to support the local tourism in connection with the pilot site of Sacidava.

While discovering the value of the natural landscape, the strategy for Sacidava focused in the direction of preserving the natural context and excluding the site from any touristic pressure. The lack of infrastructure sustained the idea of concentrating all interventions in the surrounding human settlements.

We decided to work on helping the community of Rasova, with the support of local authorities, to create a small History museum in connection with the pilot site of Sacidava. The museum would provide all necessary information for tourists and will host the objects discovered on the archaeological site.

The workshop has been organised in the small museum of Rasova. Rasova is the closest village to the pilot site of Sacidava. The site has a very difficult accessibility and faces many safety issues. The old kindergarden of Rasova has been converted into a small history

museum dedicated to the pilot site of Sacidava. UAUIM team has produced the conversion architectural project during the LDL project, as part of the visibility measures strategy. The new history museum has also received, during the Visibility Workshop, a new **illuminated sign** at the main entrance.

The workshop has been organised in two main components: the **contextualization** of the pilot site of Sacidava and the **3D visualisation** of the Roman constructions.

Contextualization is an important element as part of the visibility measures. Every single site of the Roman Danube Limes belongs to a complex defensive system. The understanding of the positioning, configuration and territorial importance of the site is only possible through the presentation of the entire context. Therefore we proposed an exhibition showing all Roman sites on the Romanian territory, with special focus on the surrounding areas. This exhibition will remain part of the Museum.

The contextualisation was made through an exhibition covering the entire Romanian Danube Limes, based on the materials produced by UAUIM and INCDT during O.T1.1 *Characterisation of the Danube Limes*. One group of participants (students) worked on the exhibition organization concept and installation: how to use the space of the museum as a virtual trip along the entire Roman Limes, based on the photographic and archaeological materials.

**The 3D visualization** has been based on 2 technologies: **hologram & 3d printing**.

At this occasion, the new Rasova Museum received a **hologram installation** showing the 3D reconstruction of the Sacidava site. A second group of participants worked on installing and producing the hologram.

The 3D virtual reconstruction of Sacidava becomes an important element of the Museum, through the installation of a hologram.

Also, because of the impossibility of accessing the site, we proposed to make small 3D models of the site, to be exposed in the Museum.

Small **3d models** of the site were produced during the workshop. The third group of participants, including primary school children, was focused on how to work with a 3d printer. The final results were several small models of the site, at different scales.



Creation of the concept for the exhibition

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Installing the exhibition

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Installation of the hologram

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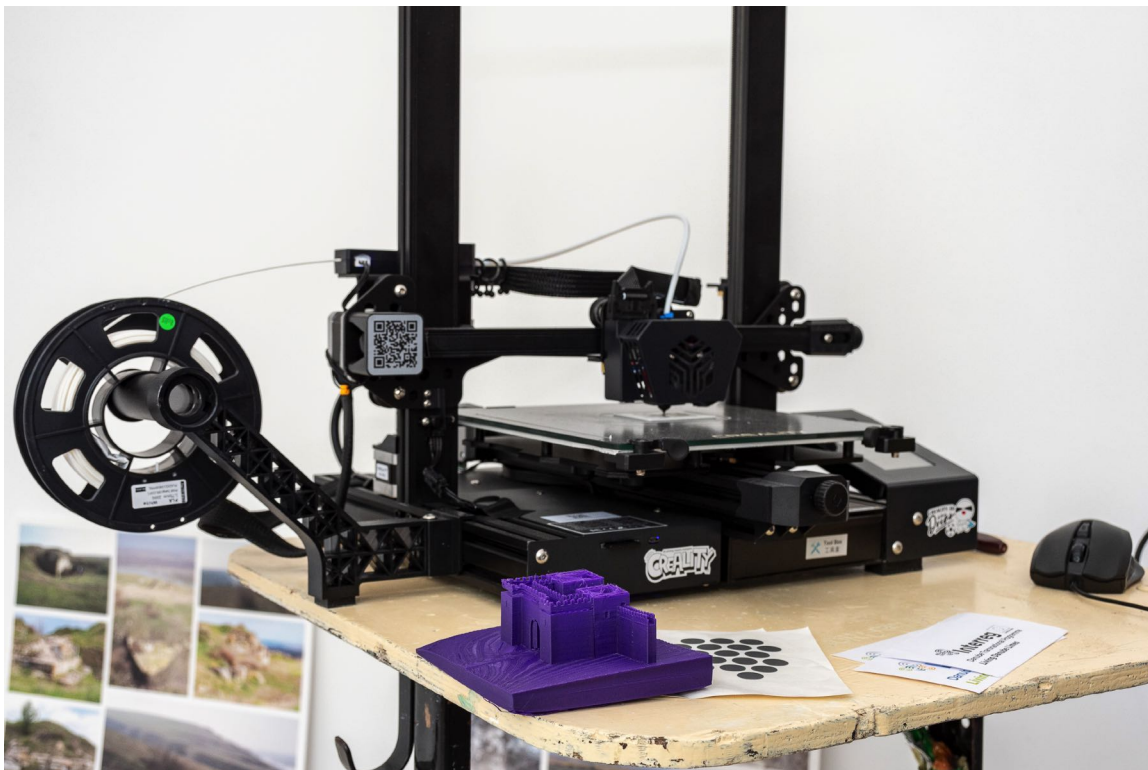
Installation of the hologram

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Installing the 3D printer for the workshop

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Printing of 3D models of Sacidava fortress during the workshop

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Installing the panel for the Museum Rasova

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Workshop team at the end of the day

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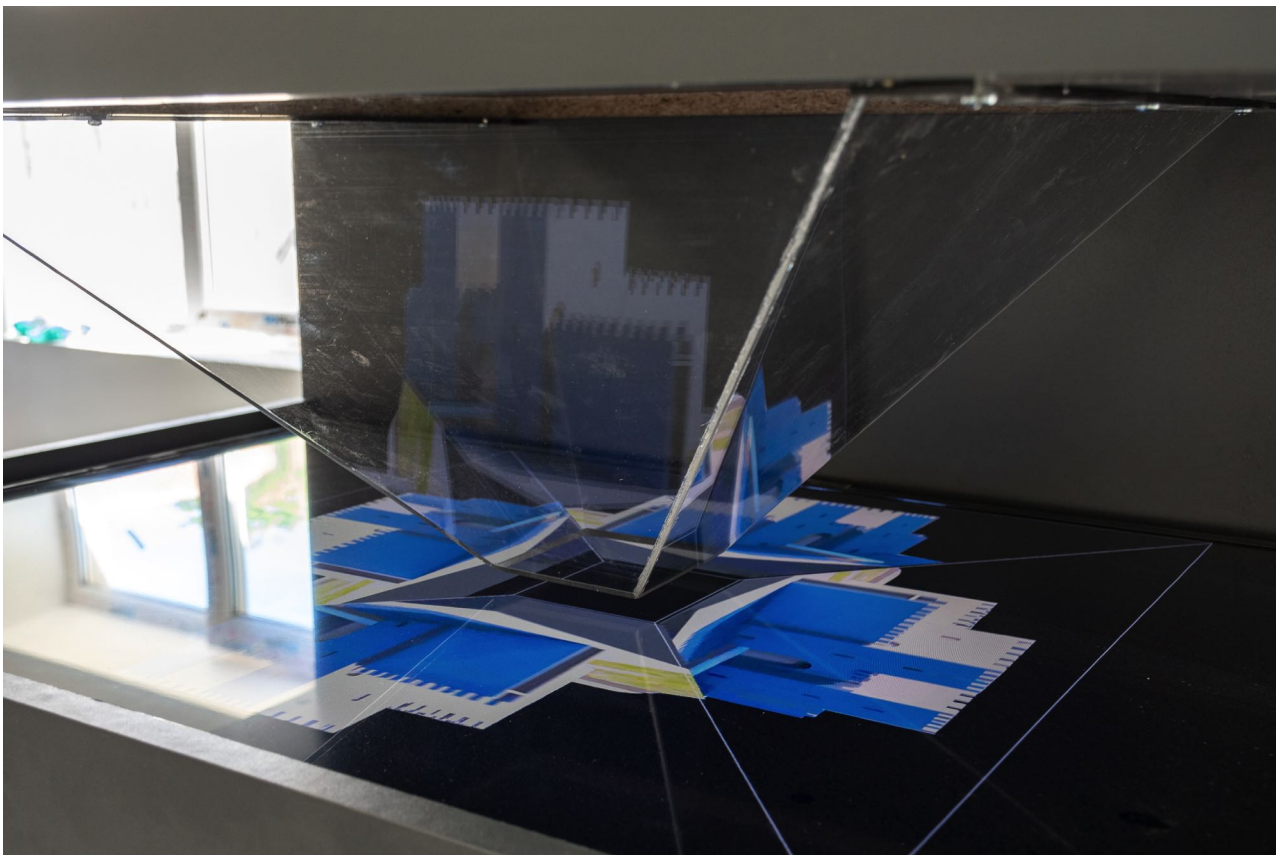
## 5. Virtual Reality Reconstruction and 3D Models

The hologram has been produced through an installation, especially designed for this occasion. It shows the 3D reconstruction of the pilot site and it can be observed 360° in a plexiglas pyramid. The 3D reconstruction has been transferred into an animation and introduced into a video editing software. The animation movie is projected from a LED horizontal smart screen (108 cm) into the 4 sides of the reversed pyramid (55x55cm; 9x9cm, h=25.7cm) and inside the pyramid the complete 3D image of the Sacidava fortress appears (as shown in the annexes). The installation can be used in the future to show any further 3D reconstructions or artefacts. The hologram will remain in the small new History museum of Rasova as main attraction.

3D models of the Roman site of Sacidava were printed during the Workshop, with a 3D printer especially acquired for this occasion. We printed models of the entire site and single elements as the tower of the main gate.

The furniture of the Hologram will also host the QR code sending to the online VR.

The QR codes were also exposed during the Roman Danube Limes Days with the occasion of the exhibition on the Romanian Danube Limes.



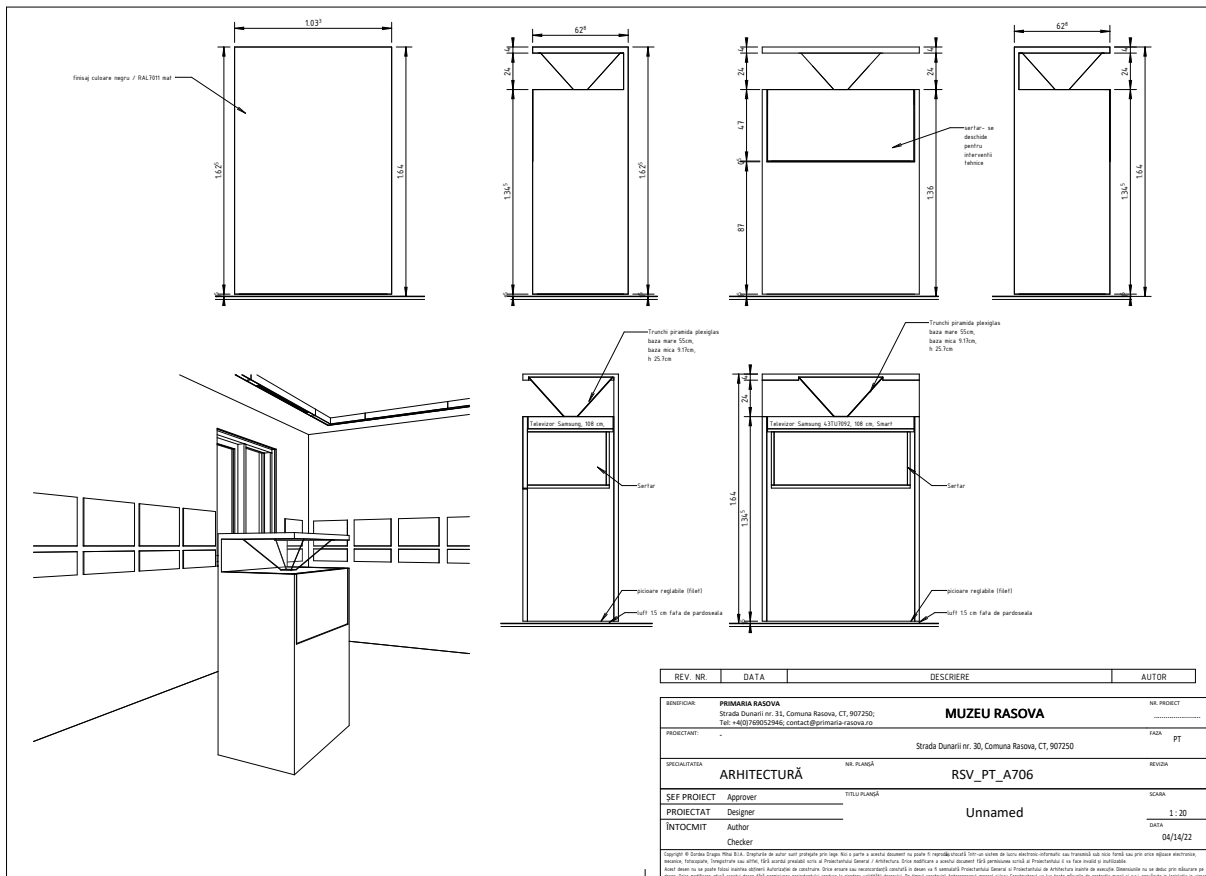
Detail of the 3D technology that produces the hologram in the pyramid

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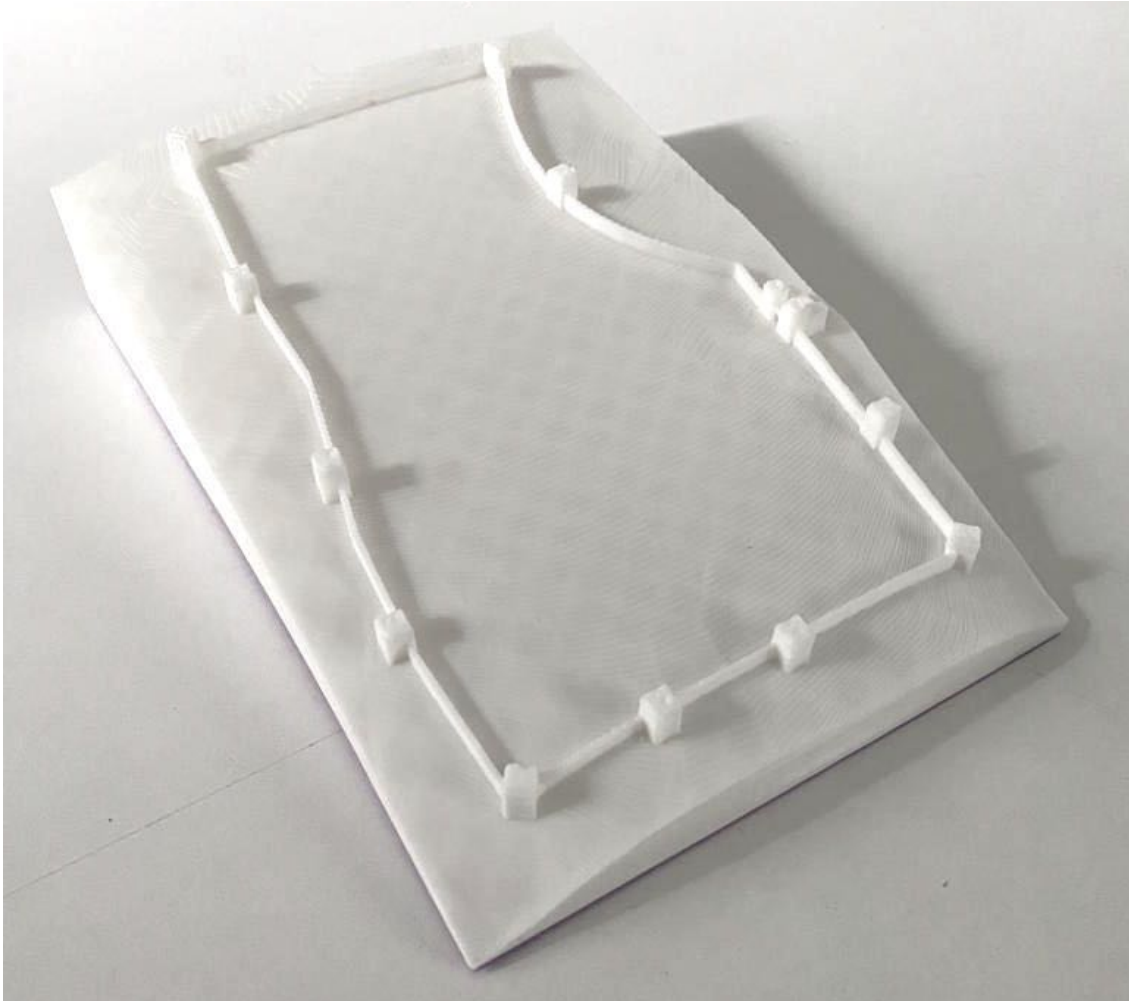
Hologram of Sacidava fortress

© Ana-Maria Machedon 2022



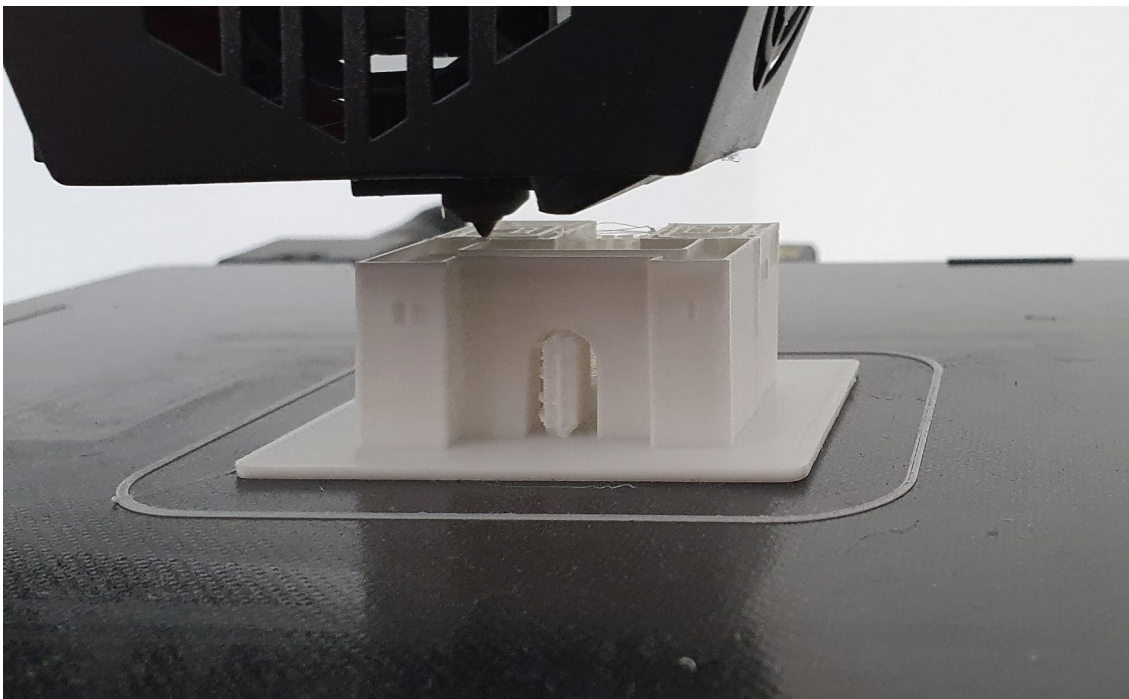
Project of the hologram furniture

© Dragoş Dordea & Bogdan Ispas 2022



Model of the Sacidava fortress

© Ana-Maria Machedon 2022



Printing of the Sacidava fortress gate

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## 6. Interplay between the 3D Models and Physical Visibility Measure

The physical visibility measures were: the conversion of the old kindergarden into a History Museum dedicated to the pilot site of Sacidava, that included the illuminated sign installed during the workshop and the exhibition dedicated to the site and the contextualization of the site in the entire Roman Danube Limes. The 3D reconstructions through a hologram, 3D printing and QR codes were included and became the first elements exposed in the new museum. The hologram is expected to become an attraction of the museum, a tool for the 3D virtual visualization of the Sacidava fortress.

## 7. Further Project Initiatives and Activities Fostering the Visibility of the Pilot Site

The exhibition on the entire Danube Limes in Romania created for the occasion of the Workshop and the results of the project (including the Visibility Measures Catalogue, the territorial research on the Romanian Limes and the Workshop) were presented in Bucharest, in the UAUM's exhibition hall, during the Roman Danube Limes Days, receiving a large number of visitors. We expect to show in the future the exhibition on several other occasions.

## 8. (Future) Initiatives at the Pilot Site Triggered Through *Living Danube Limes*

The Living Danube Limes actions in Rasova supported and launched the small Museum of History. The activities and interventions at the museum brought it to life and gave the potential to become a local attraction even before it will host the historical artefacts from the archaeological site of Sacidava.

## 9. Existing Synergies Capitalised and New Synergies Generated

During the Roman Danube Limes Days, the Exhibition organized at this occasion received the visit of the National Romanian History Museum (MNIR) team involved in the Danube Transnational Project „Danube's Archaeological e-Landscapes. Virtual archaeological landscapes of the Danube region” and their partners. With this occasion MNIR invited the Living Danube Limes team to present the exhibition and the current research in the MNIR in connection with their DTP project.

## 10. Feedback of Participants

The feedback questionnaire focused on 3 questions:

1. Could the exhibition provide organized in Rasova enhance the understanding of the territorial context of the Danube Limes and Sacidava archaeological site? (*Ajuta*

*expoziția organizată la Rasova la înțelegerea contextului teritorial al Limesului Dunărean și al cetății Sacidava?)*

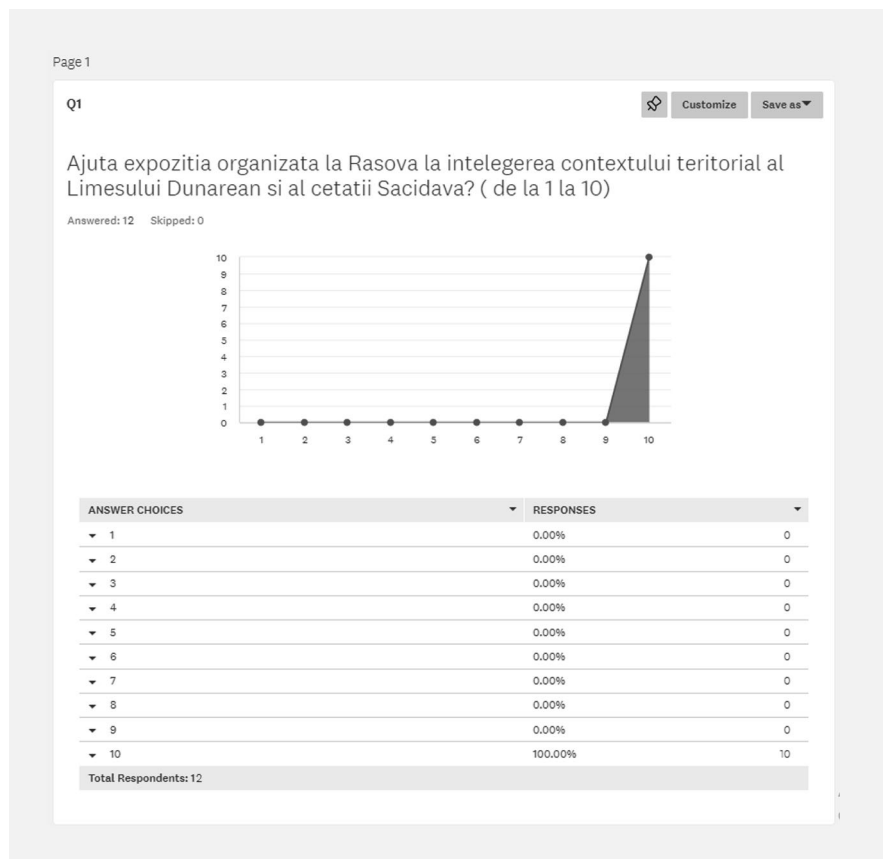
From 12 participants at the survey all evaluated with 10 points the question.

1. Could the 3D technologies – hologram & 3D physical models – improve the understanding of the ancient site of Sacidava? (*Ajuta tehnologiile 3D - holograma și machete - la înțelegerea sitului arheologic de la Sacidava?*)

From 12 participants at the survey all evaluated with 10 points the question.

2. Are the Workshop results supporting the strategy of enhancing the visibility at the archaeological site of Sacidava? (*Sustin rezultatele workshop-ului de la Rasova strategia de creștere a vizibilității sitului de la Sacidava?*)

From 12 participants at the survey all evaluated with 10 points the question.



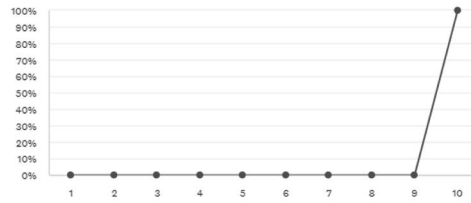
Page 1

Q2

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Ajuta tehnologiile 3D - holograma si machete - la intelegerea sitului arheologic de la Saciadva?(de la 1 la 10)

Answered: 12 Skipped: 0



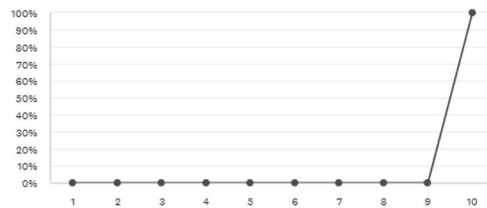
ANSWER CHOICES	RESPONSES
1	0.00% 0
2	0.00% 0
3	0.00% 0
4	0.00% 0
5	0.00% 0
6	0.00% 0
7	0.00% 0
8	0.00% 0
9	0.00% 0
10	100.00% 10
Total Respondents: 12	

Q3

Customize Save as

Sustin rezultatele workshop-ului de la Rasova strategia de crestere a vizibilitatii sitului de la Sacidava?(de la 1 la 10)

Answered: 12 Skipped: 0



ANSWER CHOICES	RESPONSES
1	0.00% 0
2	0.00% 0
3	0.00% 0
4	0.00% 0
5	0.00% 0
6	0.00% 0
7	0.00% 0
8	0.00% 0
9	0.00% 0
10	100.00% 10
Total Respondents: 12	