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DAPO PROJECT

Digital Archeology Project at Oplontis

EXECUTIVE SUMMARY

Digital Archaeology Project of Oplontis (DAPO) was developed together with Parco Archeologico di Pompei, The Oplontis Project team, Torre Annunziata community and Alta Scuola Politecnica in order to create a new way to bring history to life.

For more than a decade, an interdisciplinary team of scholars (Oplontis Project team) has been documenting and uncovering the history behind the site: Villa of Poppea at Oplontis, located in the city of Torre Annunziata. However, despite the site being deeply studied, the content was never completely translated and a system to disseminate the findings to the general public wasn't put in place.

DAPO team was conceived to create a way to bridge these contents and share it to enhance the site history through the diffusion of the work done by the scholars and researchers giving a new perspective for the content that could be better shared and understood by the local and the worldwide community. The DAPO team followed the design methodology of Collect, Define, Ideate, Design, Share and Evaluate throughout the development of the project.

More specifically, the team started from collecting information regarding opportunities in the cultural heritage sector and the current status of the villa. Through desk and field researches, direct interviews with the stakeholders (scholars, visitors, and locals), we defined that the main issue for Oplontis is related to the dissemination of the knowledge in an engaging way.

Once stakeholders' requirements have been clarified, the DAPO deliberated the solution to be a digital interactive onsite experience, which leverages different technologies (holographic projections, 8D audio, position tracking, interactive objects) blended with narrative solutions (first person narration, creation of storylines and tasks) to offer an immersive visit. In particular, the experience is based on the "revival" of a typical event happened inside the Villa: a party. The visitor, with the narration, will be able to choose a path and impersonate one specific character (the owner, the guest, the slave, the artist) and explore the site taking the perspective of that role.

After the general design of the solution, the DAPO team focused on the development of a pilot, in order to explore people's reception of this typology of experience. Detailed content and scripts have been created for Room 18 (also known as Room 69 in academic sources), which seemed suitable to represent the overall idea. Given the difficulties from COVID-19, to actually test the concept, a Desktop Walkthrough (a mockup of the site in which the environment and the touchpoints are reproduced on a small scale) has been chosen.

From the feedback collected from 20 testers, the solution, despite some improvement areas such as the complexity and the guidance expected, was considered appealing and able to create a much higher engagement compared with traditional visits. In particular, the solution allowed the testers to experience the everyday life of the character they chose.

As a conclusion, the DAPO project designed an innovative solution for the cultural heritage sector, allowing to live, in first person, the archaeological site. This would meet the requirements of several stakeholders and potentially could have a huge impact on Oplontis but also on Torre Annunziata and the surroundings.

KEY WORDS

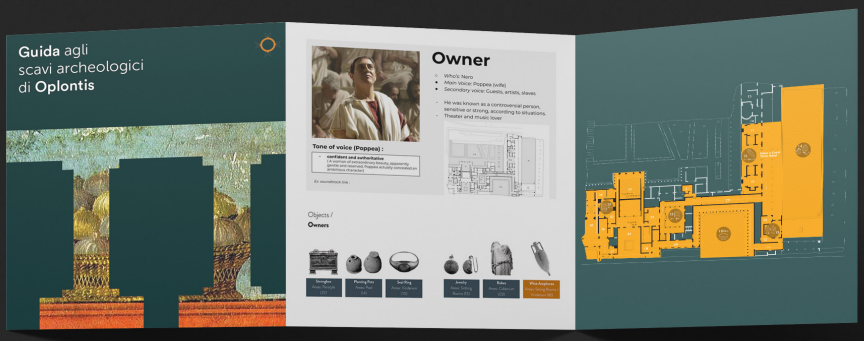
Cultural Heritage

Digital Archeology

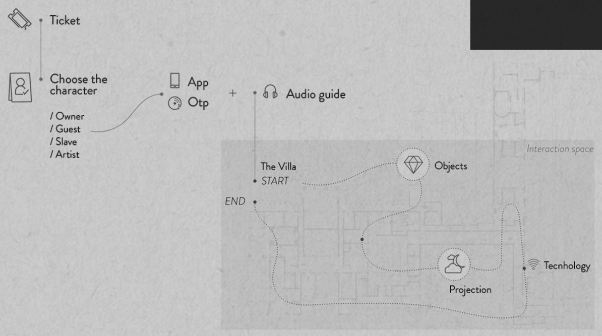
Service Design

Immersive Experience with Storytelling

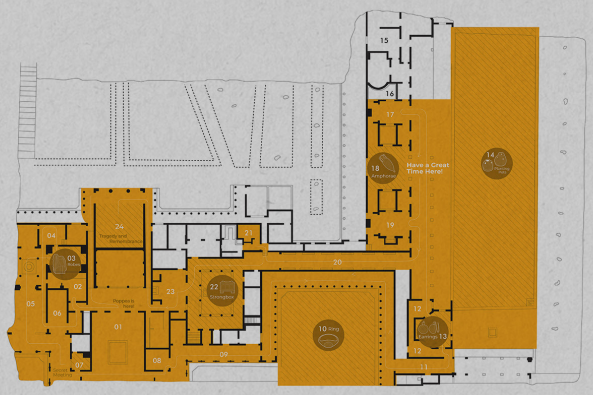
Innovations

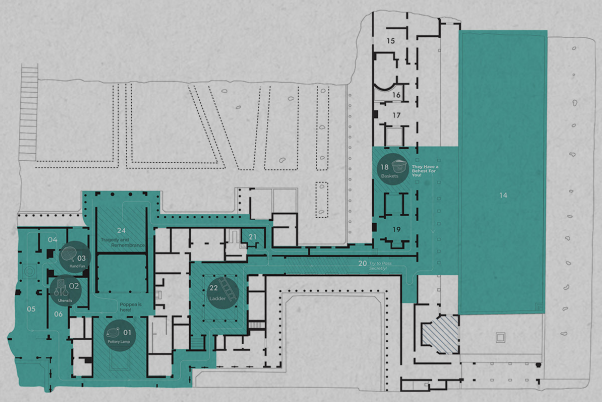


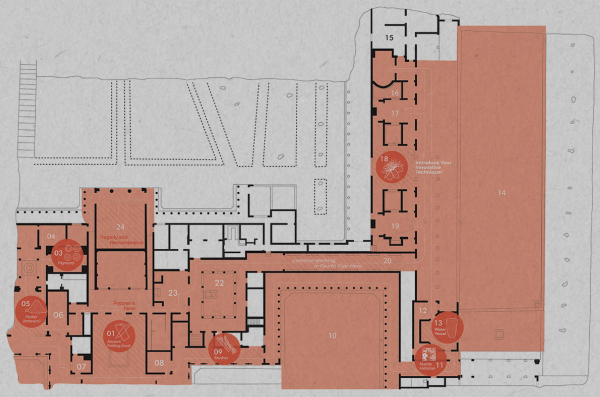
AUDIO - ARTIFACTS - APP

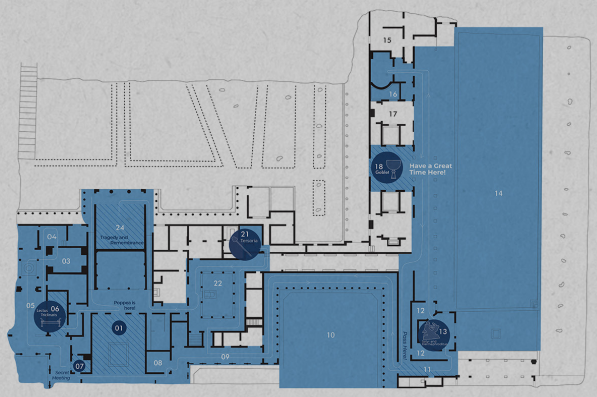


1 CONCEPT | 4 PATHS









PROJECT DESCRIPTION WRITTEN BY THE PRINCIPAL ACADEMIC TUTOR

The working methodology of DAPO is analogous to the traditional archaeological process. But rather than digging through soil to uncover physical objects, the ASP team was tasked with digging through historical, bibliographical, and digital assets to uncover and share captivating historical narratives – to find innovative ways of bringing history to life for a global audience.

It was critical that the team be multidisciplinary: combination of the visual and spatial competencies of designers/ architects with the technical and computational competencies of engineers to build totally new concepts and an economically viable plan-of-action.

The team was invited to think longer-term about cultural heritage in an era of rapid technological change, proposing visionary ideas for the on-site and digital experience. These concepts may be codified into grant proposals to institutions like the Mellon Foundation, which are poised to invest in this area of research in the coming years and could transform DAPO into an independently funded startup. Thus, the project is both about solving an immediate real-world problem of knowledge diffusion at Oplontis and about envisioning the future of digital archaeology.

TEAM DESCRIPTION BY SKILL

The DAPO team is composed by 8 students hailing from 4 countries and 5 diverse fields of study ranging from Product Service System Design, Management Engineering, Interior Design to Architecture - Built Environment - Interior, and Digital and Interaction Design. Passionate about innovation and cultural sectors, the members are well equipped with theoretical knowledge about design methodology, organizational and operational management, innovation and technology, combined with practical skills such as 3D modeling, sketching, programming, research conducting, visual communication, multimedia processing and handling, etc.

During the one-year DAPO project, our team has been working mainly on such fields of studies as cultural heritage system, archeology, and service.

The above-mentioned areas created opportunities for first-hand experiences that encourage critical thinking, long-term memory, positive attitudes towards innovations, appreciation for local cultures, and increased scientific curiosity.

To find the best solution, the process applied by team DAPO was defined by six main areas: Collect, Define, Ideate, Design, Share, and Evaluate. This methodology flow has a design approach starting from the organization and understanding of the background and content, then to defining better the problem from the previous briefing, later ideating the design solution and then finally ideating and developing the final solution.

GOAL

The key project objective is to find new and immersive ways of storytelling that bring the Oplontis history into focus: archaeological site and the local territorial system should be considered the main touchpoints for the experience. However, the aim is not only to increase the visibility of Oplontis, but to propose a new model of archaeological representation and spread that can be reproduced by other research teams around the world.

Understanding the problem

According to the historical sources, archeologists stated that ancient Oplontis was a maritime town, situated five kilometers to the west of Pompeii. It is useful to note that villas constructed in this region of Italy were not only dwellings for recreation but became stages for the welfare race: complex architectural and rich art remains testify to the above-mentioned fact. The luxurious villas of that time answered not only the everyday needs of their owners but also often hosted social dinner parties and provided guests and their retinue with lodging for long-term stays.

The main archaeological finds in the area consist of two monuments that had faced the sea: Villa A, which was called Poppea (luxurious residential architectural ensemble), and the complex that is known as Villa B, or Villa of Lucius Crassius Tertius (a business center around processing agricultural products, particularly wine and oil). The discovery of a bathing establishment at Punta Oncino confirms that Oplontis was a settlement around a large villa rather than a town like Herculaneum or a colony like Pompeii.
Villa A “spans the late Republic and early Empire, a critical period of changing socio-political and economic conditions in the history of Rome” (Clark and Muntasser, 2014) and it is possible to organize the timeline of the villa in the order of:

- 50s B.C. – the construction of the Villa A;
- 62 A.D. – the earthquake and renovation and repairing of damage caused by the natural disaster;
- 79 A.D. – the eruption of Mount Vesuvius;

The Italian Ministry of Culture started systematic excavations in 1964. As a result, the discovery of Villa A involves 98 individual spaces ranging from small rooms to a 60-meter swimming pool and a variety of wall paintings, sculptures, and gardens.

In comparison, efficient Pompeii work began in 1748 (Pompeii, 2018). The excavations achieved significant outcomes in those years: The Villa of the Papyri was discovered in Herculaneum, moreover, it was the turn of Villa of Giulia Felice in 1755 and Porta Ercolano in 1763.

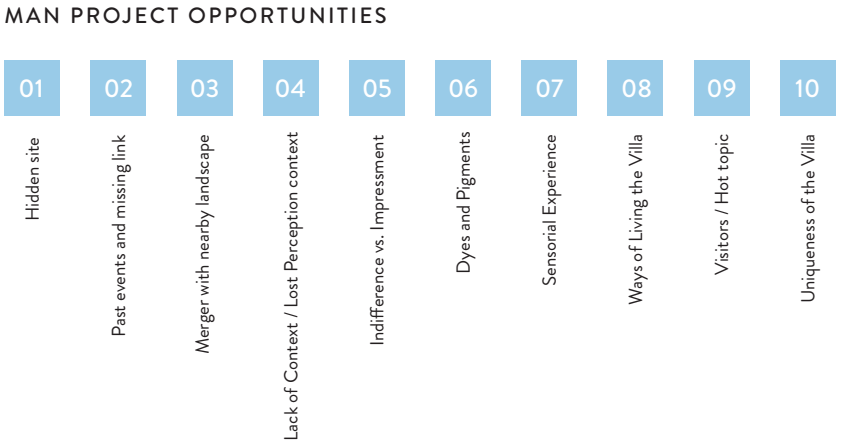
Based on the above-mentioned, it could be presumed that unequal, in terms of periods, research of these areas, Pompeii and Oplontis, provoked an uneven distribution of finances, development, and tourist interest.

Based on this general understanding of the problem, the DAPO team conducted desk and field researches, direct interviews with the stakeholders (scholars, visitors, and locals) as parts of the "Collect" phase, and we confirmed that the main issue for Oplontis is related to the dissemination of the knowledge in an engaging way.

Exploring the Opportunities

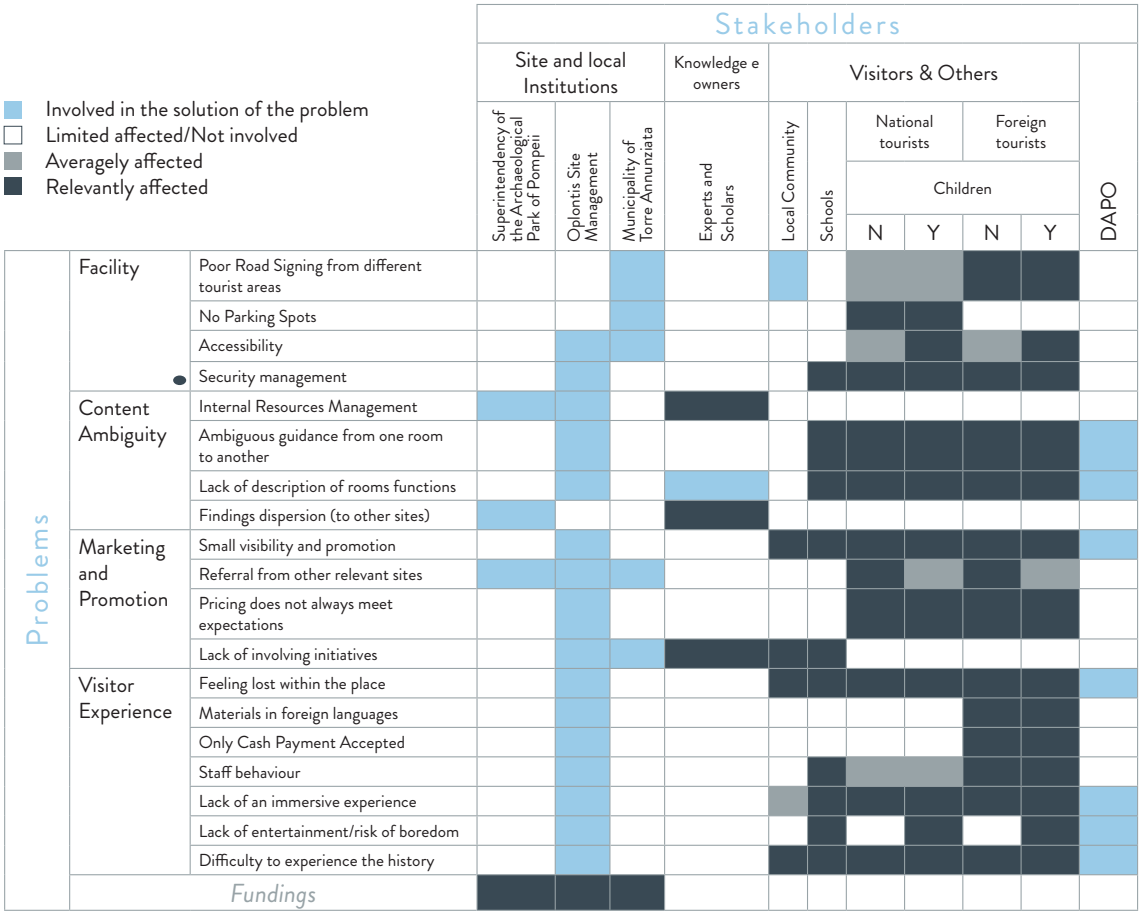
The "define" phase with the following "ideate" phrase are the parts of our design methodology that help us better frame the problem and explore the opportunities. The main activities include organizing the requirements of the project, detailing opportunities, and crossing the information gathered in order to redefine the project brief now with a better understanding of the real context, the preconditions of the site, and after understanding the real perception of stakeholders.

After analyzing all the data DAPO team defined ten opportunities that could be tackled in the final project, and they were classified and clustered to deliberate see what problems DAPO project can tackle would would it be possible to do inside the DAPO project and what should be defined as problems to be developed in other projects for Oplontis.



From the described ten opportunities the team organized a matrix to see how each of them could be connected to Oplontis' stakeholders.

Gathering the insights from the visit and the review research conducted online, it was possible to define a set of main problem areas. In order to understand which stakeholder is affected the most and which ones instead could be involved in their solution, we created a problems-stakeholders matrix that defined, in a structured way, the potential roles within the project and typology of relation



As relevant findings we can outline that:
- Foreign visitors are the most affected by the communication and operational issues; indeed, at first, they are unlikely to discover the site due to lack of advertising, especially if they are planning a general visit in the Naples area, and then, on-site, practical issues such as the payment difficulties, staff behavior and lack of descriptions would be discouraging.

- As already remarked, the Superintendency of the Archaeological Park of Pompeii has the decisional power to allow the utilization of spaces and findings, making it critical stakeholders with which it is necessary to negotiate about the permission and the utilization of spaces and archaeological findings.

- Instead, the Oplontis site management is the critical stakeholder that would contribute and has the authority to operate on most of the internal practical problems such as improvement of the visitor experience and focused activity of marketing and promotion.

- The municipality would be in charge of solving the facility problems such as road signing, parking spots, and accessibility since they are related to the urban context within which the site is located.

However, there is a criticality related to the content of the site, indeed, currently, visitors from every category notice a difficulty in experiencing the history of the place due to the absence of guidance within the Villa and lack of descriptions of the rooms. In addition, there is no form of engagement or immersive features, potentially triggering boredom, especially in children.

Through this analysis we isolated some areas in which the DAPO Project would benefit the most, in particular, indeed, we focus the intervention of the project on the reduction of the current content ambiguity and the increase of enjoyability for different categories of visitors through an immersive digital experience.

Instead, due to feasibility difficulty and to the institutional and bureaucratic issues, other external infrastructural improvements that should be requested from the Municipality as road signs or integrated touristic routes will be described as potential and further improvements once the content is fully available and delivered to the visitors.

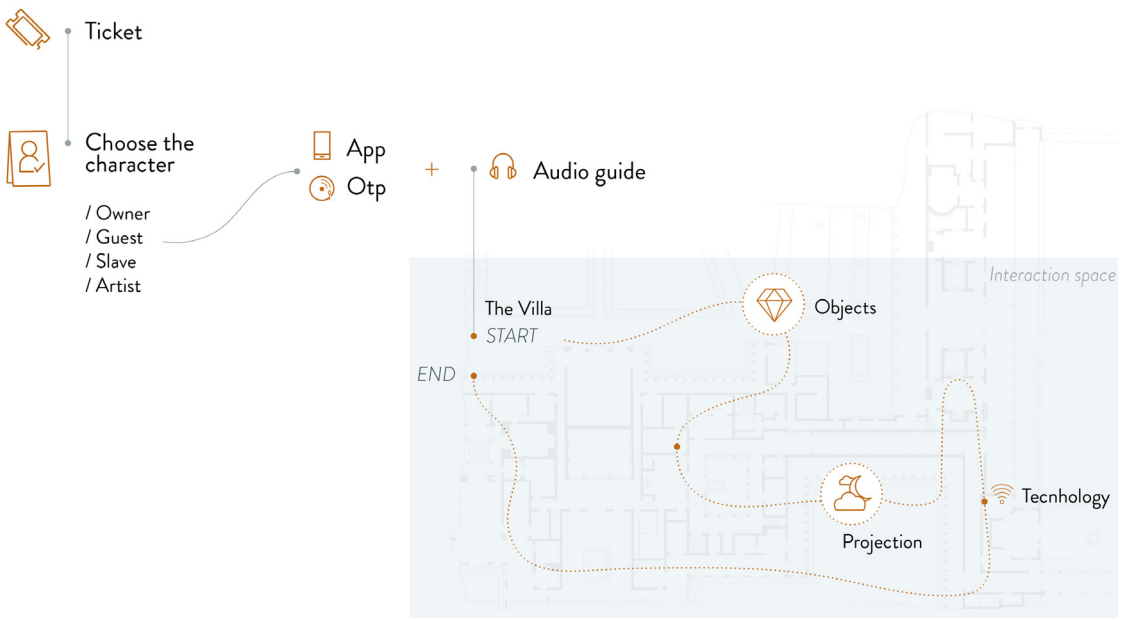
GENERATING A SOLUTION

Deeper into the "Ideate" and "Design" phase, the DAPO team decided to focus on the first concept among the three alternatives: the hybrid one (principally onsite with a digital component and a limited online section). As stated, besides the pros and cons, the team decided to go for this alternative taking especially into consideration the impact this solution can have on the local community, as a starting point and enabler for further initiatives at Oplontis and its surroundings. In that sense, digital solutions can be taken into account separately being implemented once the site has gained some relevance, and the administration has realized the potential of innovative and digital solutions. Therefore, starting from the chosen solution, the Pompei administration could gradually blend it with additional online elements and consequently enlarge the reach of the project to non-physical visitors. The solution was deemed to be the most scalable and the best starting point towards a vision of the Oplontis site that increasingly embraces digital elements.

As already mentioned, the solution is conceived as four different paths that put the visitor in the same shoes of a given character. Hence, the focus is to give the visitors the possibility to choose between the different actors - slaves, owners, guests, artists - and experience their different points of view: how they lived, what they would do inside the villa, the types of paths that they would take. Together with this experience, the main goal is to explain previous habits, relationships, the use of the different rooms inside Oplontis adding value and different perspectives to the usual cultural content. The common conclusion will be the tragic event that happens in the 79 dc: the eruption. The shared line among the different paths is the theme, being the preparation of a party organized by Poppea and Nero. The guests are the Roman noblemen, owners of the villas, and neighboring houses in the Oplontina region. To animate the narration, there will be the actions of the slaves intent on making the villa perfect and of the artists who make the final touches in the frescoes. Moreover, the visitors will live the interactions between the owners of the villa with their frivolous and luxurious guests.

There are some key elements in the experience proposed:
- Audio content: An audio device (integrated within an app) guides the various visitors individually according to roles (e.g. The visitor is given at the beginning a device and he chooses whether to be the owner, the slave, etc.). The audio will be immersive and with first-person narration, allowing the listener to feel inside an alive environment, and to identify himself with the role he chose.
- Visual content: Through specific technologies, projections, and other visual effects, the environment will become alive and dynamic. In particular, people from the past will start populating the villa and, through the audio effects, it will seem like they are interacting with
the visitor.
- Interaction: Multiple rooms are conceived as points of interaction where the different roles meet. Indeed, the experience changes according to the actions and the choices from the visitor itself and other people. For instance, the presence of other visitors and roles in the same room, will affect the level of the environmental audio or trigger some specific situations within the room.
- Discover: visitors have to explore the highlighted room in the map (within an application on a digital device) and have guidance in discovering the audio/visual contents.

As an outcome, the experience will change and it will be configured as follows:



In order to “Share” our solution by distilling it into concrete and physical configurations, we chose Room 18 (according to the official archeological plan, Room 69) for holding the pilot phase of the project. Since one of the main objectives of our project is to immerse the visitor in the environment and life of the ancient villa, it was very important for us that the chosen room with its architectural features meets the above-mentioned point. Room 18 has a prime location with views of the pool, viridaria, and the inner gardens, which are visible from a large window. Thus, the visitor learns not only information related to the purpose of the room but also plunges into the atmosphere that reigns around. Given this variability in the surrounding interiors and exteriors, our team, in the process of developing the paths and roles of visitors, tried to create the network of interactions, logically integrating the information about the room itself and the environment.

In order to realize the pilot of the solution, we turned to technology and interactions. 8D audio clips are created to function as the audio guide; pepper’s ghost effect is embodied on the window frames to have holographic projection; wifi-mesh is used to track the audio guide device and the visitors; objects are carrying bluetooth beacons to trigger relevant audio and visual content.

Due to COVID-19, we built a service Desktop Walkthrough to “Evaluate” and gather comprehensive insights from testers by immersing them in an unusual context, without the need to reproduce the site on a large scale, but in a small one. This approach can also integrate the gamification and board games concepts, making people project themselves in the space, allowing them to reflect and give more personal insights. With the help of filming, the experience could be essentially turned into the documentation that can be viewed and assessed by a larger audience digitally, which is crucial during this time. Furthermore, the desktop walkthrough partly keeps the physical dimension of the original project, without the need of delivering a fully digital experience that is far from the concept envisioned. Consequently, the double fold objectives could be effectively met.

Through the desktop walkthrough and the consequent survey, the team wanted to:
- Explore proneness to this type of experiences for archeological parks;
- Understand the emotions of the users;
- Measure effectiveness in delivering content;
- Measure the level of engagement;
- Spot potential critical steps;
- Gather documentation to convince stakeholders about the goodness of the idea.

In order for the Desktop Walkthrough to be effective boundaries objects need to be designed to transmit and transport the tester to the environment of the on-site experience. The boundary objects created by team DAPO aimed to showcase the testers the look and field of the site and dimension with maps, and images. Then showcase the touchpoints they would use within the experience Audio guide and headphones. To later immerse them inside Room 18 with a replica of the room and small characters representing themselves.

Analyzing the documentation (recordings, interviews, etc.) produced following the pilot, we can conclude by summarizing the two main takeaways of the testing process:

1) There is a strong interest in non-conventional and digital visit experiences. Testers truly appreciated the opportunity to learn about the archeological site in a rather non-traditional way, casting light also on historical and cultural aspects that cannot be conveyed with a “passive” visit (e.g. the way slaves were treated in the past is better understood when recreated in the first person). DAPO seems to provide the right answer to this need.

2) Simplicity is preferred over complexity. Through the pilot, we realized that it is paramount to always relieve the proposed service through the eyes of potential new customers. In such a way, simple solutions are preferred to complex ones that do not express the right message and meaning. This will certainly affect the content that will be delivered in the in-situ experience. By providing simple instructions about the interactions available in each room and a better introduction to the villa and the character, the DAPO app will serve as a guide, while letting the visitor move freely in the rooms/villa. Similarly, audio content will be made clearer with more precise instructions.

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