

Anonymous heritage

Integration of technology and visitors' active involvement as a revaluation method of cultural assets

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Abstract: The protection of the archaeological heritage is an issue addressed to the world. The Italian territory is full of places that can tell interesting stories, but often is "too complicated or too expensive" to provide the necessary means to save them from falling into ruin. Some places were privileged receiving the funds needed for restoration, but not for their development within the territory. This mechanism leads to an inevitable future abandonment of the area due to lack of disclosure able to sensitize the population to a new livable and exploitable for tourism. Italy often loses immense treasures because they fall into anonymity. A place like this is the archaeological park of Saturo in Leporano, near Taranto (Apulia, Italy), situated on a promontory on the coast of Salento. There are remnants as the Acropolis, the Roman villa and the coastal tower testifying a historical range of time that starts from the XVII century BC and ends at the XVI century AC. The policy of the archaeological park of Saturo is focusing on sensitization of the population through events of historical re-enactment or laboratories of artisan techniques with the materials of the time. Their results are the cohesion of the new generations and the local diffusion to keeping alive historical settlements. This interest will soon be lost again because the approach is not "in step with the times" and it will attract only experts or lovers; for a winning mix, it is necessary an integration between heritage and technologies that makes a connection between the findings at the site, the artifacts that have been taken and preserved in the museums, and the visitor's involvement through applications giving a total understanding of what was in place where today there are only finds.

Keywords: Anonymous heritage; Heritage protection; Visitors involvement; Sensitization.

Archaeological park of Saturo

The locality of Saturo, is about 12 km far from Taranto and it is accessible along the Salento coastal road, the archaeological park is located on the hamlet's promontory. The site extends both on the interior of the coast, until reaching the territory of the city of Leporano, and both on the external, to the coast and the beaches of Saturo, Canneto and Porto Perone.

Saturo between VII century BC and XX century AC

The archaeological park of Saturo was the natural theatre where the archaeological literature places the oldest urban settlement of Taranto, Satyrion. The toponym Satyrion refers to the place mentioned by the Delphi's oracle, so it is derived from the first Greek colonization, which had taken place on the coastal headland located between the inlets of Porto Perone and Porto Saturo. Before the Greek's colonization, the village had

solid and thick defences on the coast and in strategic areas for territorial control since the Neolithic era. Later, around the fifteenth century BC, there was a gradual abandonment of the village by its inhabitants; the cause of this drop is explained by anthropology of this population, which is characterized by nomadic nature. Then, during the thirteenth century BC, there was a very slow increase of population, due to the new naval and mercantile contacts between the Greek importers and local people. This relationship established the birth of areas with defense walls or other structures with containing function; this was the typical organization of these populations, who suffered cultural influence from maritime relations with the eastern Mediterranean of Crete, Ithaca and Cephalonia. In the last decades of the seventh century BC, this population suffered a real invasion by the Spartans that culminated with the complete destruction of the ancient city; then the village was covered with sterile sand in a sign of purification. This destruction was a result of wars between Spartans and Partheniae. These were the illegitimate children of the Spartan women and their slaves, they were Spartan citizens who did not enjoy political rights and they were procreated during Messenian Wars in order to create a generation of soldiers and slaves. The Partheniae fought for their freedom, but they were defeated and they had to flee, led by Falanto, they landed at Porto Perone. The myth tells that Falanto went before to the Delphi's Oracle seeking a response about his future, the Oracle replied: "Populated the greasy ground where Iapigi live and be their downfall". Taranto became the new polis and Satyrion became a sacred settlement where the "Sanctuary of The Source", dedicated to the nymph Satyria, was frequented until the third century BC.



Fig. 1 – Placement of the area and identification of the remains. (Copyright: Tatiana Pignatale, Ilenia Tramentozzi)

When this region had fallen under Roman control, the area of Taranto changed completely his shape and organization, in fact , it were built villas along the coast in the south of the city. These lands were really suitable for the localization of villas both from an environmental perspective and for farming. The remains of the Roman villa of Saturo are presently visible: the villa consists of two separated nuclei located in the upland overlooking the inlet of the same name and they were part of a private residence that contained both a thermal private bath and a large thermal public complex. This residential expansion had degenerated and even the Sanctuary of the Source became part of a private villa. During the following centuries, the population of the

promontory did not diminished until the city had to start to defend against maritime attacks started in the XVI century AD. In order to defend the city, it was built the tower of Saturo, which is part of an *aragonese* sighting system. The Tower was built on the ruins of the ancient Villa, unfortunately because of these works, the remains were destroyed and the Villa was divided into the two nuclei mentioned earlier. This approach was also used during the Second World War and on the promontory were grafted multiple military installations. In fact, inside the archaeological park, there are military bunkers grafted with no respect for the heritage; one of them was exactly installed on the remains of the Roman villa that contained the Sanctuary of the Source. Another interesting building close to the sea is the lighthouse retractable: it is situated on an artificial hill constructed on the remains of Roman villa and its construction had led the loss from countless archaeological heritage. Subsequently, when the war was over, there had been several archaeological excavations, which had furnished crucial informations for the reconstruction of the history of the site. However, unfortunately, it was necessary to cover and hide the discoveries, because in Italy there are not enough public funds for archaeological research. Now we're waiting for the necessary funds for a redevelopment of the entire area, in order to protect the historical awesome heritage of the site.

Saturo in XXI century AC

The excavation break has caused a raid of the area that had invaluable historical, cultural and patrimonial importance. For this reason, the company called Soc. Coop. Polisviluppo has taken over the management of the park since 2006. His policy about the Saturo's archaeological park is focusing on the sensitization the conservation of the archaeological heritage. The company reaches its objective through events of historical re-enactment or laboratories of artisan techniques with the materials of the time. This approach allows attracting a greater number of people through activities based on active participation of the visitors or entertainment events for all age's people. In fact, this method opens the doors of local history to all participants of each group activities; allowing to the archaeological remains to be understood by a wide range of people and not only by scholars.

Up until now, it has positive results with the population, mainly by the younger generation. The activities take place in open air in different sectors inside the park because it is organized for to oversee more events at the same time. At the entrance it was created a main area that reminds an arena which hosts some of the Polisviluppo's re-enactments, and where were reconstructed a temple and some votive sculptures.

Furthermore, in adjacent sectors they have been made tubs for recreate the ambience of a real archaeological excavation for to sensitize the visitor on the thematic of the place. The map of the park, made in comic strip, is a great funny for children and thanks to it they can take a picnic in hidden spaces equipped with tables or they simply can play together seeking the archaeological remains pinpointed on map.



Fig. 2 – Activities conduct in the archaeological park of Saturo (copyright: Soc. Coop. Polisviluppo)

All the activities designed for younger generation are called “Archeogiochi” and there are some projects that visitors can join when they come to the park. One of these projects is called "living archaeology experiments with history" and it is an original way to knowing and understanding history; adult and children can live the experiences of the archaeology workshop, bringing to light some imitation of remains ranging from prehistoric to Roman times. Another project called "Paintings in the prehistoric caves wall" was created especially for the younger children to improve their ability to draw. In fact, they are supposed to carve their stories inside a cave with the typical subjects of Paleolithic parietal art. Graffiti will be realized on supports fixed to the walls of the hypogeal cistern, evoking the prehistoric caves and the technique of the painting imitates the ancient one using mixtures of natural colored pigments. Furthermore, the most interesting event is surely the re-enactment, where the typical scenarios for the historic period are reconstructed, using natural materials to make clothes, weapons, huts and a lot of other things that have been made and used at that time. Each re-enactment corresponds to a historical period and a series of activities are made for to retrace a correct typical day for the time, for example like the grinding of grain or the food preparation. The centerpiece of the representation consists of the repetition of battles told by historical texts, this allows visitors to take part in the preparation of the era weapons and combat simulations, or attend the show as spectators.

Public relation and integration with digital solution

Documentation through photogrammetric survey

The approach used for data retrieval has been the photogrammetric survey. This method produces a high quality three-dimensional result without compromising the reliability of manual measurements; it is the best compromise between the output's data produced and the economic cost necessary for it. Effectively, the main justification of photogrammetric method is the association's lack of funds for the rental of measuring equipment, such as laser scanners, aimed at producing significant results for scientific spreading. Our work of surveying leads to the creation of three-dimensional models of the finds and of the remains present inside the archaeological park; this was necessary for archiving reason and for our integrative proposals inside it.

The survey was divided into several stages. The first step was to obtain the authorizations by the Superintendence of Archaeological Heritage of Puglia, both for access to the park and for getting photographic and dimensional data of the remains. Moreover, we decided to operate a preventive inspection of the area to assess the state of affairs of the remains and what were the best time slots for raising photographic data.

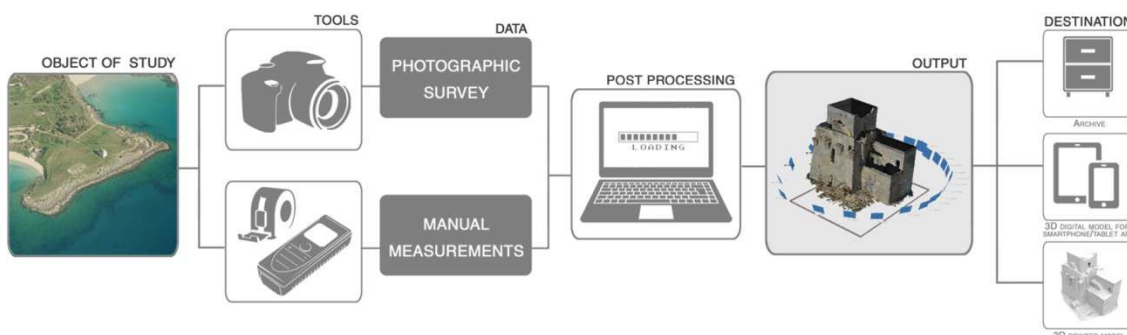


Fig. 3 – The main workflow used for the survey of the remains and finds in the archaeological park of Saturo. (Copyright: Tatiana Pignatale, Ilenia Tramentozzi)

The second phase was the direct measurement with the laser measuring instrument and manual tools. Subsequently, we placed the target plates to create a referral system to be exploited in the graphic reconstruction. In the fourth stage it has been carried out the photographic survey campaign, having as instrumentation Nikon D3200 with 18-55mm Nikkor zoom lens. The final phase includes the processing of data collected through using the Agisoft PhotoScan software. This process was the more intensive processing and it included: identification of target areas in the photo, alignment of these and generation of cloud sparse necessary for the subsequent creation of the dense cloud, building mesh and process occlusion of the holes and finally the creation of textures. The product output from these processing has been a PhotoScan mesh too large to be displayed easily. For this reason, the mesh has been lightened to enable a faster viewing that is the necessary adjustment to be exploited by portable devices like smartphones. In fact, the first aim of that work was the creation of 3D digital models, of the remains and of the findings, for to place them in a dedicated App about the park. The second was the print of 3D physical models, which would be integrated in the innovation panels proposed by us.

Integration proposal

The humanistic approach used by Soc. Coop. Polisviluppo is a great method to engage the younger generations. Our ambition is to evolve the existing approach for improve the park's activities and increase the visitor's attraction to the area. Site's analysis has proved that the best choice would be install technologies with outdoor long life or interactive solutions for visitor's devices. Another need was to elevate the park until a landmark for the surrounding community. For this aim, we have made a study of the potential users of the park, especially in summer, and what would be their desires. It is noticed that the best suitable technology for park's enjoyment from a great amount of different people, should to be mainly an APP.

In a short while, the current approach will no longer be "in step with the times" and the archaeological park will risk falling again in anonymity. Anonymity is understood as a situation of abandonment in which the archaeological heritage has no maintenance or protection from a possible theft of the remains; it is a situation where the archaeological heritage cannot be known by anyone and which is destined to disappear slowly and tragically. The archaeological park of Saturo has just overcome this situation, but it is temporary and it needs of measures able to not diminish the vested interest. For this reason, the range of persons that can visit the remains and the archaeological finds should be increased. The method is also focused on an approach that allows the fruition of it by totally or partially impaired people. In other areas, for example in painting, there is a growing trend to make low reliefs printed in plastic material that permit the comprehension of pictorial composition through touch; we propose to adopt this trend also in archeology, to allow the understanding of the architectural features of archaeological heritage.

Application for smartphone and tablet

It is not an innovative technology, but it is a method that takes advantage of integration between existing technologies and visitor's active participation. It is a virtual platform where historical data are provided. In fact, one of the biggest problems is the involvement of people who are not only scholars or people interested in historical subjects, but those people who could use the park every day for fun. This app should include a database for all of the information about the different park's tour, the remains, the finds and the three-

dimensional reconstructions. It should also organize the artefacts discovered in the park's areas in a digital catalogue with their relative information and details. It might show where any artefacts were found and which museum it is kept in.

This mechanism could open a collaboration with museum holders of such treasures, providing three-dimensional digital reproductions that the user can rotate or watch at will on their device. This idea is relying on a partnership with the online database like Sketchfab (www.sketchfab.com), which allow the visualization of previously loaded 3D models, and then listing them in the APP of the park through a QR code. This would create a direct link to the Archaeological Museum "Marta" of Taranto, which contains one of the largest collections of artefacts dating back to the Magna Grecia.



Fig. 4 – Visualization of the finds in the app. (Copyright: Tatiana Pignatale, Ilenia Tramentozzi)

Another potential of this interactive three-dimensional models library should be the ability to explain where any artefacts was found during the several archaeological park's excavations. In fact, in the archaeological park of Saturo, there are many parts of the remains hidden after the recurrent excavations. This was made for preserve them until the moment in which the park would receive the necessary funds for a proper recovery plan. The app is able to show the photographic documents of the hidden parts and their correct placement, even when the visitors are not in the site.



Fig. 5 – Visualization of the remains and their hidden parts in the app. (Copyright: Tatiana Pignatale, Ilenia Tramentozzi)

Different park's tour

The App's use is not designed for fixed stations placed in the park, but for mobile device because they allow identifying the visitor's location on a virtual map. This will be possible thanks to smartphone and tablet's GPS triangulation system, so the visitors can enable the thematic tour they would please to discover. To realize the different paths, there are required a careful analysis of the different types of visitors and a study of the timing that the different categories of users should spend in the visit. Indeed, the children stay the most targeted category thanks to the activities of Soc.Coop.Polisviluppo. Interactive technologies proposals would increase the thematic tour directed to scholars thanks to the database of advanced information provided by museums; and fixed stations, located in the park, should contain the 3D physical model printed in plastic materials that can attract the totally or partially impaired people. Eventually, the diversified visits can be focused on various topics, like precise historical periods or entertainment activities.

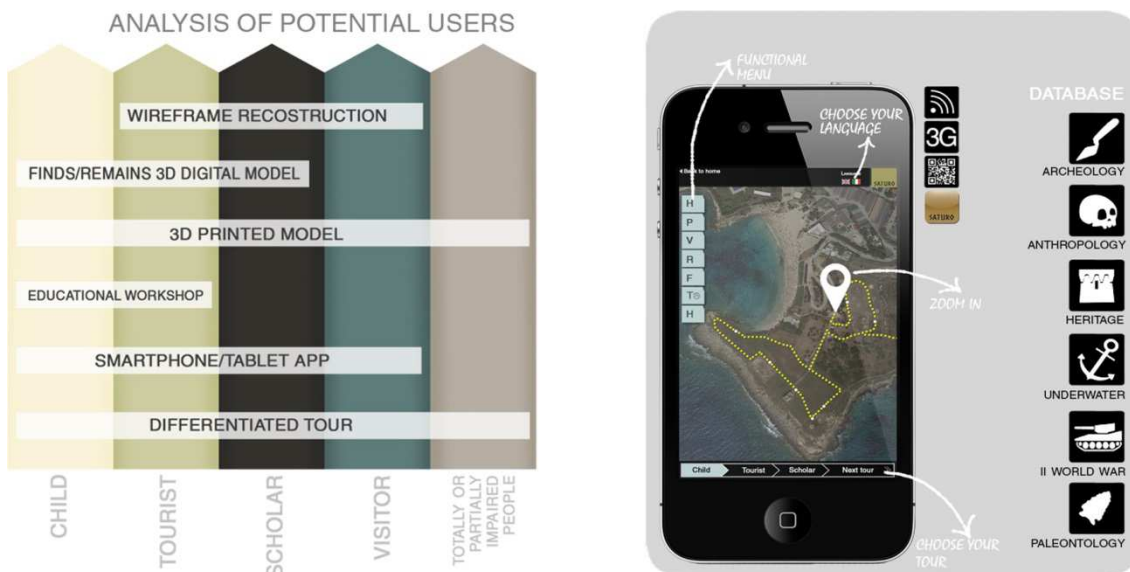


Fig. 6 – Analysis chart of the potential users and view from the app dedicated to different tour. (Copyright: Tatiana Pignatale, Ilenia Tramentozzi)

Cognitive panel of remains

The proposed panel is a support element placed near every artifact situated inside the park. In fact, it will allow the understanding of each artifact through the use of various technologies that should offset the capabilities of each type of user. At the top of it there is a wireframe reconstruction of the original item seen from observation point where is installed the panel; so the visitor can compare what was the artifact at the time of its construction with the current state of affairs. In its lower part it presents a 3D physical model printed in plastic materials, which can provide a complete knowledge of the details through touch; the model is conceived for totally or partially impaired people and children. Of course, the physical model is accompanied by a detailed description about the item and its history, with a QR code that allows you to access the APP of the archaeological park. Next to the model, there are the captions in different languages, also integrated with an embossed plate written in Braille.



Fig. 7 – Various views of the cognitive panel. (Copyright: Tatiana Pignatale, Ilenia Tramentozzi)

Conclusions

The research and the analysis conducted to date are only a part of a project proposal. The archaeological park would gain many advantages with the implementation of this proposal, beyond the development of visitor's interest. The 3D digital models allow to extract information about the "health" status of the remains, in addition to providing a clear documentation. They permit to make the diagnosis about state of degradation and of progressive conservation. These 3D digital models also could contribute to the creation of a digital database that would contain information and assessments of accessibility of the remains. These data are an excellent basis for the study and modeling of possible reconstruction of archaeological remains of archaeological park of Saturo.

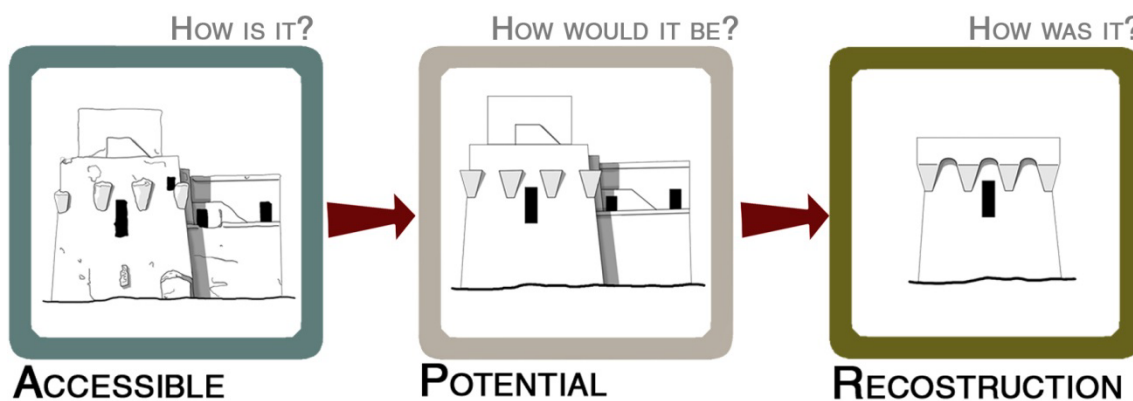


Fig. 8 – Scheme of the potentiality of making a digital database of the remains.

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