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SH.AR.P.P. (SHared ARcheological Platform for Prehistory): New Perspectives for the Project †

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Abstract: SH.AR.P.P. is a project conceived by the Digilab Research Centre of Sapienza University as a tool against the fragmentation of archaeological data for inquiry and the generalized public disregard toward the prehistory of the Italian Peninsula in favor of more recent and impressive evidence. This article reports updates on the project since its presentation, focusing on technical solutions to widespread issues featuring open-access tools, database building, sharing raw data at different levels, and user-friendliness for both developers and final users.

Keywords: prehistory; database; Drupal; QGIS; open source; cultural heritage; digital humanities

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1. Introduction

The digitalization of our cultural heritage is a necessity and a responsibility, as well as a very complex and time-consuming endeavor. In Italy, much progress has been made thanks to the efforts of the Central Institutions, as demonstrated by the normatives provided by the Istituto Centrale per il Catalogo e la Documentazione (ICCD) and the ArCO (Architecture of Knowledge) knowledge graph [1,2]; their synergy provides an articulated infrastructure embracing the independent results of digitalization and data gathering carried out by the Regioni, as requested by the "Accordo Stato-Regioni" registered on the 1 February 2001, art. 3 [3], and carrying them into the logic of Linked Open Data (LOD).

Even so, providing a flexible service available to a variety of users is challenging, especially when it comes to reconciling data from very different periods that reflect different research approaches. This is especially true when dealing with prehistoric and protohistoric times.

SH.AR.P.P. (SHared ARcheological Platform for Prehistory) was conceived by the Digilab Research Centre of Sapienza University of Rome with the ambition of proposing a multi-faceted tool able to bridge the gap between the national descriptors and the public concerning prehistory. From the very beginning, it was intended to have the form of an online GIS platform linked to a versatile database exploring the chronological and cultural definition of the evidence, the relationship between man and his environment, and the studies concerning the sites with their accompanying bibliographies [4]. Beyond that, in order to enhance public visibility and dissemination, SH.AR.P.P. is concerned with the communication of arranging visits to the very site or to the museums involved, as well as with initiatives for the protection and promotion of such sites. In other words, our aim has always been to operate as a bridge, bringing together different existing features on which to

build new ones in order to provide the community with a more defined and richer picture of the prehistoric Italian heritage.

The project can only reach its full potential if powered by an open-access mindset and tools; it has been designed with the aim of reaching—and serving—different kinds of users and purposes ranging from digital cataloguing and scientific research to public outreach and dissemination.

Since its inception at the very end of 2018, SH.AR.P.P. has been slowly but gradually progressing, while having to contend with considerable interest coming from different sources, but also little funding. We share here how we have progressed on a technical level, notwithstanding such challenges.

2. Materials and Methods

As we anticipated above, our beliefs have oriented us toward open-source technologies and standards, a choice with the further positive implication of reducing operating costs to a minimum, making the whole operation sustainable in the long run. When we first started, we planned to use MySQL for the database construction and QGIS as the application for linking spatial analysis to the former. Such a double-edged solution would have been a well-known and explored route to safely follow [5,6], but as we were starting to take practical action on the database side, other concerns arose.

In 2022, we received funding from the Digilab Research Centre of Sapienza for one person to work on the project for a four-month period. The aim was to take a leap from the developed theoretical models to show the practicability of the project in that timeframe; at the same time, however, we did not have the resources to hire a professional developer to assist us with coding. Even leaning on database developer software, as archeologists leaning to the digital side of the humanities, the whole process became more time-consuming than we could afford. We needed a different solution, and it came from exploring Drupal [7].

Drupal is a well-known CMS (content management system) available under GNU GPL license whose major selling points are its user-friendliness and flexibility enabled by the impressive—and continuously increasing—number of modules that enrich the basic structure while also allowing for high levels of personal customization [8] (pp. 4–5; 11). We can attest to the user-friendliness; once the main setup of Drupal was performed by an expert user, an operator with experience in simple data entry and DB logic structuring could build most of the database after a basic training period of 3 h.

One of the main challenges that we have faced throughout the whole project has been one of compatibility. Since SH.AR.P.P. was conceived as an enhancer to gather different data from other repositories in order to enrich them and build on them as a whole, we had to ensure that everything could be properly linked and shared between repositories both in-coming and out-coming. With Drupal, such issues can be resolved by several module expansions, one being "RDF CKK". This module allows one to import RDF data and vocabularies in Drupal, while at the same time making "*the site data available as RDFa embedded in the live Web site following Linked Data principles*" [9] (p. 764).

Another sensitive issue concerned the diffusion of data in our database. Looking beyond what can be derived from other repositories, working on the massive data input required by SH.AR.P.P. on our own was unthinkable. Once the structure would be solid and operational, with a base of several hundred sites with details derived from publications, we planned to open the platform for external input by verified registered authors to enrich it, while our role would be to control the consistency of information, the management of anomalies, and the activities of dissemination. Such planning naturally brought up several issues regarding the public/non-public display of the raw data inserted into the database. As much as we would like to include any level of research to provide a tool for study and comparison of evidence, it is clear that almost no one would be willing to openly share their unpublished work, and the same unfortunately holds true for many published authors. There is a prejudice against open data in archeology according to which sharing information about the location of sites would encourage illicit trafficking of antiquities.

Although our view is that we should look beyond the immediate and *eventual* backlash and strive instead for a future in which people can recognize and thus respect their heritage of their own volition, these considerations cannot be overlooked. One of our main concerns has been to ensure that each author's input could be set to different levels of openness: "accessible to the author only", "accessible to the author and to management (pending validation)", "accessible to the scientific community" (a list of verified accounts) or "open access", to name a few. Drupal has proven to be extremely well suited for this kind of consideration, in light of the different modules that can help us achieve our aims. Among these modules, we have the numerous "Node Access" modules, which set permissions for viewing, editing and deleting each type of entry, and "Role expire". The latter allows us to set a time limit for authorizations so that temporary access for special reasons can be provided to external users with the author's approval.

3. Results and Discussion

Since our first presentation of the project [4], many things have changed besides the technical side of the matter. We have slowly but steadily enriched and solidified our structure, which has now reached a number of 16 tables for data inserts and 45 thesauri for the standardization of entries, respectively called "content-type" and "taxonomies" in Drupal's logic. Every taxonomy has been appropriately filled with content derived from shared standards provided by the ICCD when available.

We have also worked on the "brand identity" of the project and on its visual appeal for users. Such topics are often relegated as final or secondary steps in the academic field, as opposed to "real" content quality. We argue that this approach is a luxury for well-funded and well-known projects and that, even in those cases, user experience should not be overlooked and considered last. A logical blending of content and visualization strategies is of utmost importance to guarantee a smooth workflow for the expert and enrichment for the public that needs a pleasant experience to stay and return. User-friendliness becomes thus a key aspect in our planning in view of our aims that go beyond research, and we would like to reach out to people of all ages willing to improve themselves and increase their knowledge of their territory.

4. Conclusions and Future Prospects

This article is but a small, mostly technical update on the SH.AR.P.P. project, and yet we think it holds significantly more. In an age when a digital approach to the humanities has become imperative, but finds the majority of us still ill equipped for it, this experience demonstrates what can be achieved with little funding and modest technical skills. Our objectives are ambitious and have been growing with us as we try out new solutions and think about how much more we could achieve with just a little push in a direction not yet explored. It is challenging work, but extremely worthwhile.

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