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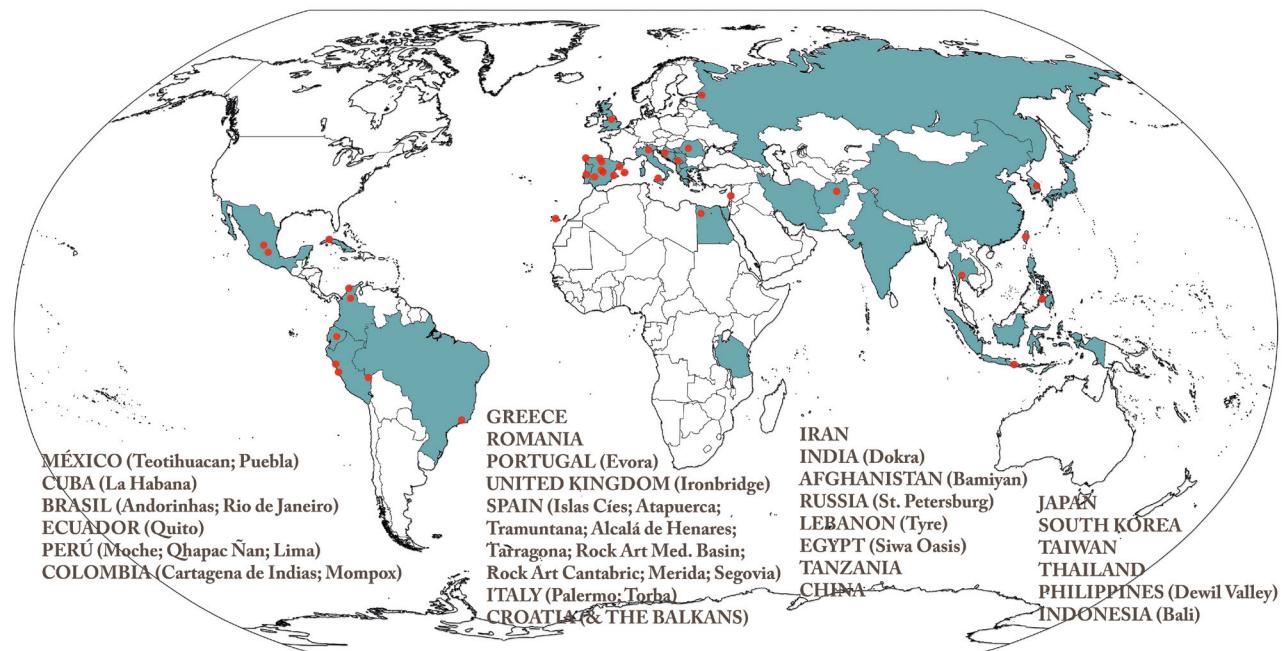
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Y más que conocimos in situ...

And more that we realised there...

...TALKING ABOUT THE REVOLUTION. INNOVATION IN COMMUNICATION WITHIN THE ARCHAIDE PROJECT

***...Hablando de revolución. Acciones innovadoras de
comunicación en el proyecto ArchAIDE***

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ABSTRACT

To attract visitors and enhance their experiences, museums have led recent development efforts using social media channels, along with the advancement of virtual reconstruction and immersive reality. The academic community has been more reluctant to engage with these techniques, particularly in the communication and dissemination of research projects. This lack of visibility reduces the effectiveness and potential impact of European Commission initiatives, prevents European citizens from understanding the processes behind the use of European funding and restricts opportunities to promote Cultural Heritage. ArchAIDE is a three-year project funded by the European Commission under Horizon 2020, and is meant to engage with and inform specialist and non-specialist archaeologists and technologists and the public. In addition to the research carried out by the project, the partners have chosen to reflect on how many European research projects are virtually unknown to both the scientific community, and a wider audience, and explore how this might be improved as a fundamental aspect of the research.

ArchAIDE has invested heavily in communications activities to better understand how this deficit might be addressed. This has taken the form of writing for multiple audiences, and through visual communication using images and video. The aim is to tell an interesting story that will engage a wide audience, while communicating the progress of the project with its successes and difficulties, in a way that is also compelling for specialists. To achieve this we have adopted the concept of 'visual

storytelling' as a key strategy for our communications, using images and short phrases to create easy and multi-level communication. The aim is to move beyond languages and translations which can sometimes over-complicate information, and to focus on using 'visual objects' instead. This conveys information about the project quickly and simply, rather than creating content for multiple audiences. ArchAIDE is also taking advantage of Web-based resources, particularly social media, to create innovative storytelling about the project, in order to build a collaborative community. So far, this synergy between web, visual and video communication, often using humor, has shown good results in keeping our audiences engaged. ArchAIDE is also exploring the application of marketing strategies to attract audience attention, help them to discover the aims of the project, and subsequently encourage participation.

KEY WORDS: ArchAIDE project, European project, archaeology, visual communication, collaborative archaeology

RESUMEN

Con el objetivo de atraer más visitantes los museos han implementado en los últimos años nuevas estrategias de comunicación a través del uso de canales multimedia y el uso de tecnologías de restitución y realidad virtual. La comunidad académica, sin embargo, se ha mostrado en general más reticente en el uso de estas nuevas técnicas de difusión en el contexto de proyectos de investigación. Esta falta de visibilidad no solo dificulta la posibilidad de influir en las iniciativas de la Comisión Europea y de explicar cómo se gestionan los fondos europeos, sino que desaprovecha la oportunidad de promocionar el valor del patrimonio cultural. ArchAIDE es un proyecto de investigación financiado por la Comisión Europea en el marco Horizonte 2020 entre cuyos objetivos está la difusión de resultados entre la audiencia especializada y el público general. Junto con los objetivos principales, el proyecto reflexiona sobre la falta de visibilidad de los proyectos de investigación y explora diversos modos para superar las limitaciones existentes.

El proyecto ArchAIDE ha puesto especial énfasis en las actividades de comunicación y difusión, no sólo de los resultados obtenidos, sino también de las actividades que se realizan durante la implementación del proceso de investigación. Se ha adoptado un plan estratégico mediante la difusión de material audiovisual con el objetivo de alcanzar la máxima audiencia posible, generando una narración sobre el desarrollo del proyecto. Para ello, se ha adoptado la técnica de narración de historias utilizando un lenguaje eminentemente visual junto con textos cortos adaptados a los diferentes tipos de receptores potenciales. El objetivo es difundir

los avances del proyecto de una manera más sencilla y rápida que la elaboración de textos específicos para cada sector de audiencia.

En este contexto, las acciones de comunicación en el proyecto ArchAIDE se desarrollan mediante una amplia presencia online, particularmente a través de diversas redes sociales en las cuales se expone la narrativa del proyecto y se promueve la participación colaborativa de toda la comunidad potencialmente interesada. Hasta el momento, esta sinergia entre la difusión online y la comunicación visual ha demostrado unos buenos resultados tanto en el incremento progresivo de seguidores como en la misma fidelización de la audiencia. ArchAIDE también explora la aplicación de estrategias de marketing para atraer la atención de la audiencia, promover la difusión de los objetivos del proyecto y, consecuentemente, estimular la participación.

PALABRAS CLAVE: Proyecto ArchAIDE, proyecto europeo, arqueología, comunicación visual, arqueología colaborativa

1. INTRODUCTION

More often than not European research projects are virtually unknown both to the scientific community and general public. This lack of visibility is partially due to a lack of effective presence online.

ArchAIDE is an ongoing three-year project funded by the European Commission under Horizon 2020, which main goal is the implementation of a computer-based application for the automatic identification of archaeological potsherds from a single picture. Along with the main objective, the project has put special attention on dissemination and communication activities in order to maximize its potential impact beyond the project community. In order to do so, not only the aims and results of the research are being disseminated through popular social networks but also the set of tasks that are constantly being carried out along the research process.

The concept of “visual storytelling” has been adopted as key concept of the communication and dissemination activities. Thus, pictures, animated gifs, infographic footages, and video animations are being constantly disseminated through multimedia channels, which have proved to be beneficial in receiving meaningful feedbacks during the implementation of the project. In this paper the benefits of the communication and dissemination strategy implemented within the framework of ArchAIDE project are discussed.

2. ARCHAIDE PROJECT

Pottery sherds are the most common material found in archaeological excavations all over the world. The identification of the pottery type that corresponds to each sherd is a critical task in archaeological practice. A proper classification and identification of the pottery types provides the basis for dating the archaeological context, and for raising more general issues about consumption patterns, technological change or symbolism. Generally, potsherds are sorted according to their geometric features and other attributes such as decoration and fabric. Consequently, this approach requires a certain degree of expertise. Due to the massive quantities of sherds recovered daily from archaeological excavations, the task of identification is extremely time-consuming. In this regard, it must be beared in mind that in accordance with the Spanish regulation (and other European countries) the archaeological findings have to be reported within one year of the end of the excavation, which necessitates a proper classification of all potsherds. Considering this scenario, ArchAIDE project was devised with the goal of automate to a maximum this classification and identification process and, thus, reduce the time devoted to such tasks.

The main goal of the project is to create a computer-based application for the automatic identification of archaeological pottery from a single picture of a sherd. The proposed automatic classification system is devised to support the work of archaeologists on-site by extracting geometric features from a single image of the sherd. These geometric data will be used by a machine-learning classifier trained on different pottery classes in a reference database in order to select a set of possible candidates for classification. The database is being fed with catalogue drawings and real images of potsherds already identified and classified. The classes considered so far comprise Roman amphorae, *terra sigillata*, Medieval, and Post-medieval pottery. The system is designed for mobile devices, where users will take a photograph of the sherd that has to be classified and upload it to the application. Then, the system will provide the pottery types that match with the sherd features as well as other relevant data, such as chronology, other contexts where the same type has been found, profile drawings, a bibliography, and a 3D model of the whole shape. Once the data is returned, users might interact with the system by indicating the most suitable option among the alternatives provided.

At the end of the project, the ArchAIDE application will be presented as a tool to recognize unknown sherds but also to share information about ceramics (by metadata); a real-time system will be able to reuse the information, generate new data (by data visualization and statistic methods) and released it as open data.

The system operates on both shape and appearance-based recognition. Consequently, the reference database is being populated with both drawings of archaeological pottery and photos of real potsherds.

Within the framework of the project a method for the automatic extraction of geometric data that describes pottery shapes from conventional archaeological drawings has been implemented. The method permits not only the automatic extraction of geometric data from 2D drawings, but also the automatic generation of a 3D model of the whole shape (Figure 1).

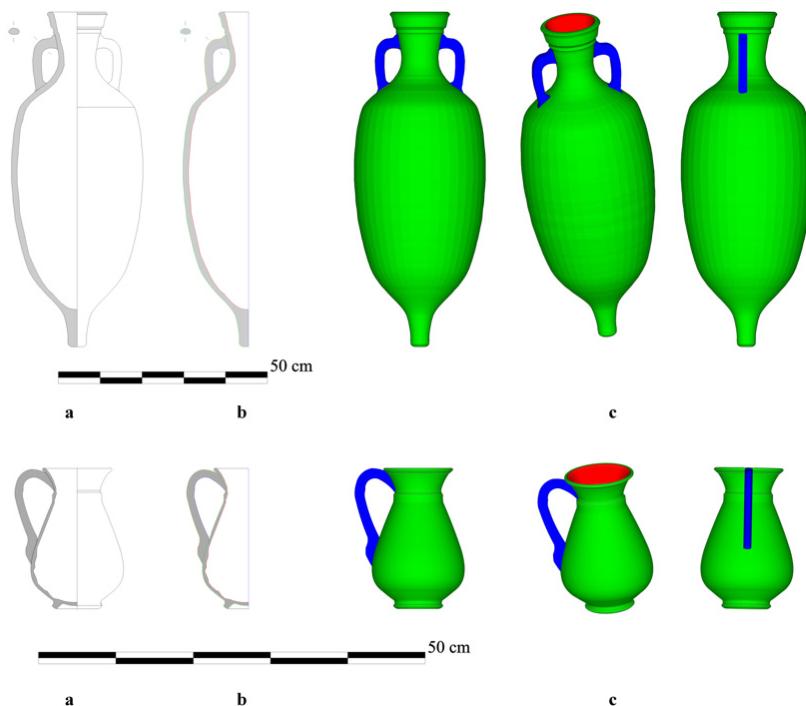


Figure 1: Example of the automatic 3D generation pipeline. Conventional 2D archaeological drawing (a), Geometric features extracted (b), and 3D Model (c)

On the other hand, real sherds are being recorded by photographic means following a standardized protocol. The potsherds are displayed on a homogeneous blue-colored background next to a black and white graphic scale. The photographs are taken with standard mobile devices while the profile of the fragment is properly oriented (Figure 2a). The populated potsherds are being recovered from

different archives of ongoing archaeological excavations and public institutions. Nonetheless, the training process of the machine-learning classifier sometimes requires far more samples than those actually available for an individual pottery type. In these cases, virtual sherds generated from 3D models are additionally used as training data (Figure 2b). However, this synthetic data is only reliable for training the shape-based recognition system, while the appearance-based recognition has to be completely trained by using photos of real potsherds.

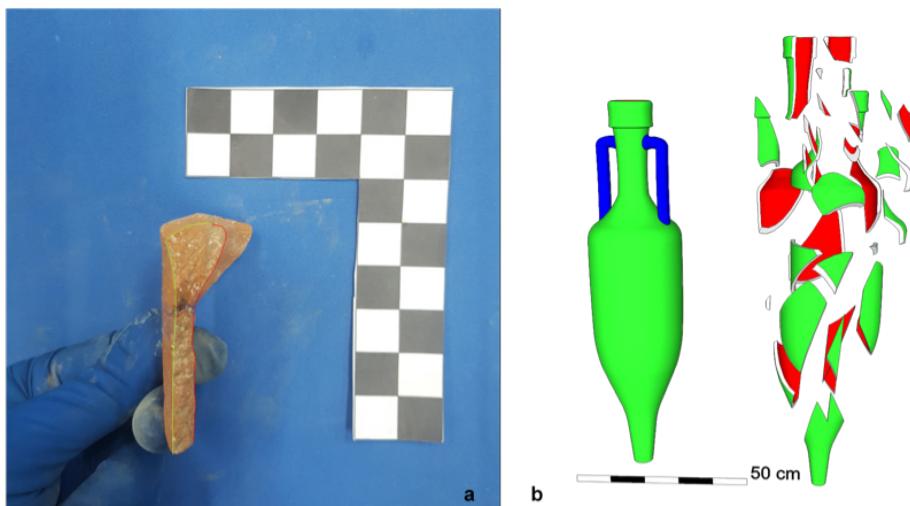


Figure 2: Photo of real potsherd with geometric features outlined (a). Virtual sherds generated from a 3D Model of Roman amphora (b)

As is apparent from the preceding text, the collaboration of associates in sharing their resources is of great importance, especially to cover the number of samples that are required by the machine-learning classifier. In this regard, the population of the reference database which is integral to the application is being carried out through the collaboration of the archaeological community. Among other reasons that will be discussed in the next section, the importance of engaging a wide audience has brought about ArchAIDE to build a community where individuals (researchers, scholars, students, professional archaeologists, cultural heritage managers) can take part by sharing their skills and resources.

3. COMMUNICATION STRATEGY

ArchAIDE has made communication one of its central aims, in order to maximise its impact beyond the project partnership. The communication strategy is to create a well-informed and engaged audience, focusing on raising the awareness of possible users and stakeholders through a collaborative policy to stimulate the target audiences, and give feedback and suggestions during the implementation of the project. Communication activities are focused on reaching communities of interest for the project, as well as other domains that may use the technologies developed. The activities were also developed to attract the attention of the media and public, who are interested in culture, history, archaeology, and indirectly, the project and its results.

Beyond the general aims, the main objectives of ArchAIDE communication strategy can be summarised as:

- Producing an understanding of the products are in development during the project.
- Reaching a new and different public audience, creating a narrative to involve both researchers, scholars, scientists, archaeologists and the public, communicating work in progress, including challenges and difficulties.
- Involving the general public through smart and friendly use of language.
- Engaging different public sectors to explain how European researchers are creating something useful for easier comprehension of our common historical and cultural heritage. To show also how these activities are possible thanks to European funding, making clear to European citizens how their taxes have been spent.
- Creating an archaeological collaborative community, with the purpose of discussing the relevant themes of the project, explaining the benefits connected with the introduction of the ArchAIDE technologies, involving them in testing to facilitate training, building strong relationships for continued communication after the end of the project, and during the exploitation of results.
- Creating knowledge regarding the importance of open data in archaeology and moving more people toward using, sharing and re-using archaeological data.

3.1 Target groups and their messages

Fundamental to outlining an incisive communication strategy, has been the need to analyse and define the ArchAIDE target audiences, organising them in five groups:

- The global archaeological community: professional archaeologists, archaeological companies, scholars, researchers and higher education students.
- The general audience: archaeological associations, EU and Extra-EU citizens, and students;
- Stakeholders: public and private Cultural Institutions, Museums, ICT companies, Cultural Heritage companies;
- Media professionals: print media journalists, broadcast journalists, Cultural Heritage and archaeological bloggers;
- Policy makers;
- Partners of the consortium.

Through careful analyses of the target groups, it has been possible to link them with focused communication objectives and create focused messages, building a reference table where it's been possible to allocate communication channels and specific actions for each type of audience.

For example, eight different communication objectives have been identified for professional and archaeological companies (approximately estimated as 33.000 archaeologists working across Europe as whole, and representing the 0,006% of the combined total workforces of Europe (Hinton, Jennings 2007, pp.100-112), corresponding to 5 message and 6 communication channels (Table 1).

Table 1. Audience analysis scheme used. The example for professional archaeologist and archaeological companies group.

Target group	Communication objectives	Message	Channel
Professional archaeologists	<ul style="list-style-type: none"> -Making known the existence and the aims of the project -Producing an expectation about the final products during the period of the project 	<p>You can have support in the interpretation phase on-the-field</p>	Social network Website Mailing-list Events Promotional material Specific meetings
	<ul style="list-style-type: none"> -Creating a narrative to involve archaeologists, communicating about work in progress with its success and difficulties. 	<p>You can optimise time and costs of your work and do better job</p>	
	<ul style="list-style-type: none"> -Creating an archaeological collaborative community, with the purpose of discussing the relevant themes of the project, explaining the benefits connected with the introduction of the tool, involving them in testing to facilitate training, building strong relationships for continued communication after the end of the project and during the exploitation of results. 	<p>You can optimise your business strategy</p>	
	<ul style="list-style-type: none"> -Creating knowledge regarding the importance of open data in archaeology and moving more people toward using, sharing and re-using archaeological data. 	<p>You can share your knowledge with your colleagues around the world</p>	

Using these tables of analysis, it's been possible to build dedicated communication actions for each target audience and take advantage of each communication channel. The channels have been interpreted as tools where messages have been adapted and amplified.

3.2 When the strategy builds communication

Generally archaeologists mix up communication and dissemination terms. When we're talking about data and information from a research project, it's easy to confuse them, rendering both tasks ineffective. When we use the term "dissemination" we mean all instruments to raise awareness about the products and results of the project, while the term "communication" entails raising awareness about the implementation of the project. While dissemination and communication

have a different public focus, they may use common instruments. The rationale is to associate the dissemination and communication policies closely, as the communication strategy will aim to create a well-informed and engaged audience in order to permit a better penetration of the dissemination of the results of the project. If the first practical actions are to outline general objectives of the project linked with communication and analyse types of audience, the next fundamental step is to build a practical plan where general communication aims have been organised through phases and practical implementation.

ArchAIDE planned communication actions using three main pillars:

- **awareness:** I know the project exists and what it is meant to do
- **information:** I know what the project is doing and why
- **publicity:** I know details about specific topics I'm interested in

These three different steps have been identified within the timeline of the project and translated in simple slogans and practical questions used guidelines to create the contents of communication actions.

1) Let audiences know the project exists (first year)

- The project has started!
- What is the project?
- Who are we?
- What are the aims of the project?
- People begin to take an interest in the project

2) Let audiences know what we are doing (second year)

- What have we been doing?
- People understanding what we are doing
- People like what we are doing
- People maintain interest in the project
- People talk about the project

3) Let audiences know the outcomes of the project

- The products are almost ready
- We explain the products being developed

- People begin to take an interest in the products
- People begin to contribute to the optimisation of the products
- The products are ready
- We show the products
- We explain the products
- People talk about the products
- People begin to use the products
- Stakeholders are interested in the products

Following this scheme it has been possible to organise actions, choosing dedicated and different instruments; it has also been possible to verify them progressively, answering questions and making necessary corrections, and monitoring the reactions of the audiences.

3.3 Talk to everyone without words: visual storytelling

Developing communication strategies, outlining objectives, defining audiences, are all important ways to build relationships with audiences over the course of the project. The overall objectives are to reach the general public beyond the archaeological and scientific community, to involve citizens, and especially young people, in understanding cultural heritage is needed to understand our present time to plan the future, which is a difficult challenge. To do this, ArchAIDE has outlined a broad communication strategy for our research, focused on presenting knowledge in new ways. This includes using simple objects and concepts to impart information about specialized topics. To do this we reflected on the common use of languages in the communication activities and dissemination of the research project that, too often, are not created for the public. The section of language style is fundamental, as it is important to find the right amount of text for each target of audience, neither too much (then you risk giving an unintelligible message if the person is not a specialist, which may be too specific and technical) nor too little (then you risk boring the audience with useless and uninteresting information, or fail to attract attention and curiosity entirely). The rationale is to create storytelling involving a wider audience, communicating the work in progress with its successes and difficulties, and facilitate communication at multiple levels.

ArchAIDE decided to adopt the concept of “visual storytelling” as a key concept within its actions where, using images and core concepts, creating an

easy and multi-level communication action. Images, drawings, animations and videos are created using a style with a minimal need for translation and usable for different audiences with different levels of education. Following this direction, the visual communication production was designed to be modular and multi-layered, shaped in parallel to be a constant support to the various communication activities and channels. By using “visual objects” we are able to convey the messages more easily and quickly than by creating different content for each target audience. At the same time, a good image - supported by a short sentence - proved to be clearer than more substantial amounts of text, and could be used for multiple audiences.

Efforts were concentrated on videos and pictures. A series of short videos (with variable duration, between 20" and 2') were created, working on several visual levels, ranging from institutional documentaries, sharing video clips made with smartphones and portable devices, infographics with cartoons (Figure 3). The same video is made in different versions and durations to permit uses through different channels (ArchAIDE project 2018). The video objects are also being collected to create a final documentary film.



Figure 3: A screenshot from one of cartoons used to explain questions the project is working to answer.

3.4 Web strategy: how to no be swallowed by social media

Many European research projects are not widely known to the scientific community, and a wider audience because they do not take advantage of a web presence. This lack of visibility causes a loss of effectiveness and potential impact

of European Commission policies about research and Cultural Heritage. In some cases, the Internet, and social media particularly, not seen as a legitimate communication channel for talking about research data, or considered as secondary channel, or not used at all. Often, little effort is dedicated to managing this type of communication, stemming from a lack of understanding around the skills and qualifications necessary to manage it. Today the Internet has become an established communication space, but it is important to understand the rules, available tools and required skills to use them effectively.

ArchAIDE decided to use a wide range of Web-based resources to create narratives about the project, to engage users, and build a collaborative community enabling discussion on relevant project themes. To do this, both social media accounts and the blog have been an important part of the project.

An overall project website (Archaide.eu) was built as stable reference point for all target of audiences and as a crucial element in the communication strategy, as a central space where users can access via social media accounts, and where different types of content are available with different degrees of depth. The structure and content exposure are progressively defined following the steps described in Section 3.2. The synergy between web and video communication has permitted the organisation of a visual grid on the website, with an array of images, animated cartoons, interviews and videos (Figure 4). The multi-level communication action conveys a friendly, visual approach but moves into more in-depth information in dedicated sections, holding the attention of the audience when exploring the contents of the website.

Social networks are a real communication space. Political issues, social information, and cultural themes are communicated, creating trends and capturing the attention of the public. It is easy to become lost in the sheer volume of information however, and not always easy to find the most effective way to convey information. For these reasons many research projects overlook these channels, focusing their communication task to more “institutional” opportunities, and those who do use social media often continue to use the same language, tone and complexity, making the communication effort ineffective. In ArchAIDE, the social media presence started at the very beginning of the project with the aim of reaching different target audiences, while performing different tasks. ArchAIDE chose to use social networks as the way to reach its target audiences. We chose to focus on using four main tools: Facebook, Instagram, YouTube and Twitter. All but the last use visual communication as an essential part of their communication language, keeping textual elements secondary. The appeal of archaeological images allow

engagement with non-specialists, encouraging them to discover more content. This is always challenging however, and it is necessary to find the right balance between engaging content and informational content. Pictures and video can be used to engage, and open the opportunity to impart more information. ArchAIDE also uses humour and references to films (Figure 5), novels and popular culture as an important element to engage and communicate.

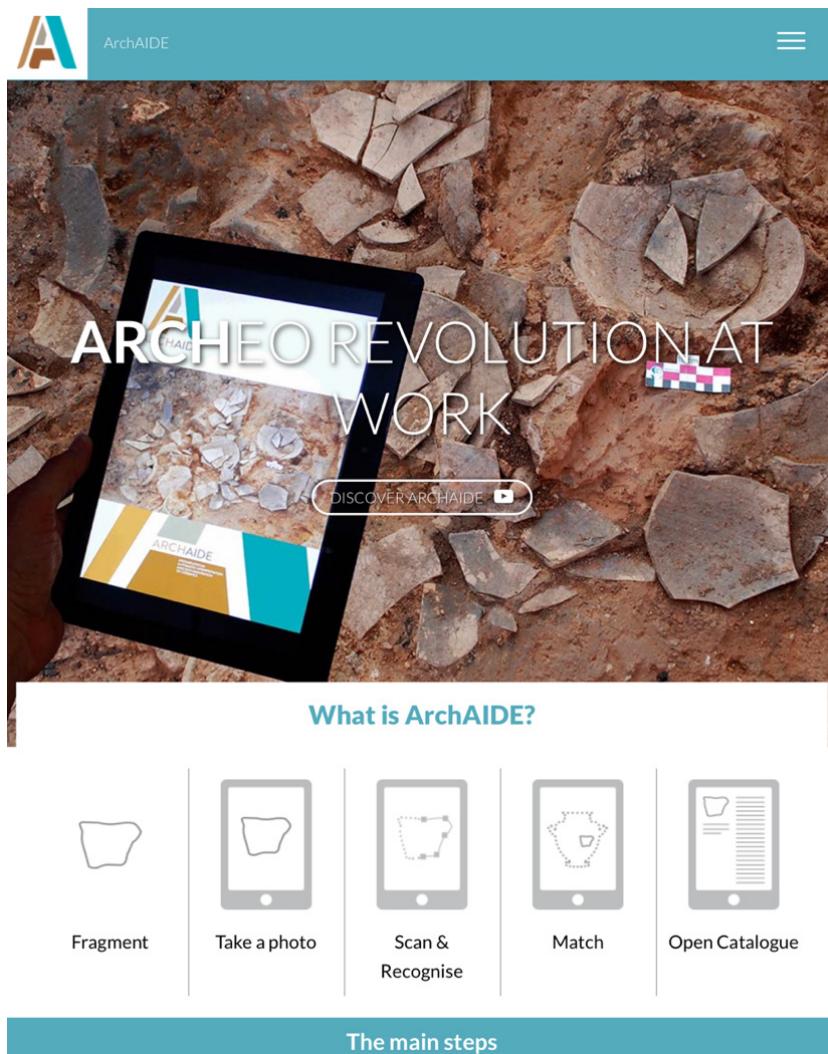


Figure 4: The upper section of the home page of the website, where it's possible to watch video presentations about the project, and understand the basic workflow via five simple icons.



Figure 5: A humorous picture used in a Facebook post. The image uses a premise from a popular film to explain ArchAIDE will be able to recognise the name of ceramic type and, at the same time, shows one of the classes (*Terra Sigillata*) used to test the tool.

This strategy has resulted in a large number of users/followers and active feedback, helping to build a collaborative community around the project and subsequently encourage participation, but while communication via social networks can help generate deeper interest in a project, it doesn't always help to disseminate more complex content. Users rarely want to read long text, but prefer to understand themes and main concepts within a few sentences. Visual storytelling has been an effective way to convey this more complex information and engage with in-depth and specialised contents. Of course, those interested in complex information represents a minority of visitors, but the project has been successful in the main goal of creating unified content useful for a range of audiences. It has shown it is possible for a typical research project funded by the European Commission to have broad recognition and engagement across audiences, upon which the ArchAIDE partners hope to improve as the project continues to move forward.

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