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Historical geoportals as media for the dissemination of culture

Geoportales históricos como medios de difusión cultural

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Abstract
This work analyses the importance of the historical geoportals for an appropriate dissemination of the cartographic heritage. This includes the artefacts produced by the cartography in the past. Many of them are fragile and their conservation is achieved through their digitization. However, heritage is culture and therefore should not be stored but shared. The general public should know the heritage goods so those can transmit culture. In this context it is necessary the creation of some media that could effectively grant access to the historical digitized maps. The aim of this document is to analyse the value of the cartographic heritage and to explore media for its effective dissemination. For doing so, there will be introduced several projects developed in Europe for the dissemination of the documental heritage and in particular the cartographic heritage, the latter using historical geoportals. Several European institutions have created digital libraries and historical geoportals. Furthermore, a centralized library has been developed for accessing the contents of a number of institutions across the continent. Even if in Latin America a similar project has been implemented it has limitations as maps are not depicted using the functionalities required in a historical geoportal. It is concluded that the creation of a historical geoportal for the historical documents of Ecuador could grant to the public a better knowledge of the built historic heritage fostering therefore their governance.

Keywords
Map, cartography, documental heritage, digitalization, digital library, dissemination of culture.

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Resumen
El presente trabajo analiza la importancia de los geoportales históricos para la apropiada diseminación del patrimonio cartográfico. Este incluye los artefactos producidos por la cartografía en el pasado. Muchos de estos son frágiles y su conservación se realiza mediante digitalización. Sin embargo, el patrimonio es cultura y por lo tanto no solo debe almacenarse sino también compartirse. El público debe conocer los bienes patrimoniales para que estos puedan transmitir cultura. En este contexto, es necesaria la creación de medios que efectivamente permitan el acceso a los mapas antiguos digitalizados. El objetivo de este documento es analizar el valor del patrimonio cartográfico y explorar medios para diseminarlo efectivamente. Para ello, se presentan varios proyectos desarrollados en Europa para la diseminación del patrimonio documental y en particular cartográfico. Esto último a través de geoportales históricos. Diversas instituciones europeas han creado bibliotecas digitales y geoportales históricos. Mas aún, se ha desarrollado una biblioteca centralizada para acceder a los contenidos de numerosas instituciones del continente. Si bien, en Iberoamérica se ha creado un proyecto similar, este es limitado al no presentar los mapas con las funcionalidades requeridas en un geoportal histórico. Se concluye que la creación de geoportal histórico para los documentos históricos del Ecuador permitiría al público conocer mejor el patrimonio histórico edificado y fomentar así su gobernanza.

Palabras clave
Mapa, cartografía, patrimonio documental, digitalización, biblioteca digital, difusión de la cultura.

Introduction

This article introduces the concept of digital libraries for consulting digitized content of an institution. Later, the old cartographic documents that together make up the so-called cartographic heritage are analyzed. Websites created for their dissemination are given various names, we will use the name historical geoportals in this document as they distribute historical geographic information.

Through the review of this particular type of digital libraries, we seek to demonstrate the various efforts made in Europe to disseminate cultural content and the way in which the cooperation of said institutions and even different countries is possible to create websites with greater content.

Having Europe as an area of study has made it possible to reduce the length of this analysis that would otherwise have required more than a single article. The emphasis on this continent is due to the efforts that have been made there for the preservation and dissemination of cultural heritage through new technologies. It is also of interest due to the integration efforts in various areas that have taken place in recent decades among the countries of the region.

This review of heritage sites aims to analyze the possibilities that the Internet offers for access to documentary content. Beyond simply consulting a content catalog, digital libraries provide access to the documents themselves. This functionality can serve as inspiration for similar efforts in our region, with an emphasis on both inter-institutional and international cooperation, both in the development of new technologies and in the communication of experiences, knowledge, and infrastructure.

Finally, it should be noted that restricting the study to a geographical area has the limitation of not including cooperation projects in other regions of the world. A review of projects on other continents could reveal similar initiatives but adapted to other contexts, realities, and cultures.

Methodology

First, this document seeks to describe the value of ancient maps, in addition to placing them within the context of cultural heritage. These concepts are introduced through a review of the existing literature in the area. As a result, the need arises for the dissemination of cultural heritage and therefore of cartographic heritage as a tool to reinforce cultural identity but also as means of raising public awareness about the territory and historical heritage represented on maps.

Subsequently, the implementation of digital libraries and historical geoportals are explored, analyzing their functionality and the context in which they were developed. Finally, the historical material with geographical characteristics that exist in Ecuador and that could be integrated into a historical geoportal is explored.

As a result, we seek to present the possibilities that currently exist for the dissemination of cartographic collections on the Internet, both in the necessary technology and in development strategies.

Development

Ancient maps

Maps provide a sense of understanding and control over the territory they represent. We often view them as unquestionable representations of reality on the ground, and we rely on them to navigate and make decisions throughout the day. With the new mobile applications, maps have become dynamic entities that are updated and traveled at the pace of our needs. In this panorama, old maps, which no longer represent an up-to-date view of the territory or which were created long before modern cartography techniques, are seen as obsolete images, perhaps only valid for their decorative capacity. However, these artifacts from the past can still guide us in our attempt to preserve culture and bring it within the reach of the public.

Old cartography is mainly made up of maps, but it also includes globes, sketches, engravings, etc., made in the past and that no longer describe the reality of the area they represent. These cartographic artifacts are mainly drawn or printed on paper and being old, this material runs the risk of deterioration. That is why the libraries or institutions that own them create files to store them physically. However, and given that they can no longer fulfill their function of illustrating reality, how can these documents be used in the present?

Ancient cartography is valuable from two perspectives. First, the information it represents allows us to know the past and perform historical analysis. Old maps, sketches, or engravings allow us to understand the changes that the area they represent has undergone. In the case of heritage contexts, it allows us to know information about the terrain, the landscape, or the buildings that make up the group they represent.

Second, maps are themselves cultural assets as well. The map provides information about its creation process and the aspirations of the society that created it. Therefore, ancient cartography requires more than one analysis of the information it presents, a critical study to understand our history and better assess the environment that surrounds us (Cascón-Katchadourian, Ruiz Rodríguez, & Román, 2018).

To achieve this, antique maps must be accessible to the public in settings suitable for exploring their geographical and artistic qualities.

Cultural heritage

The modern world presents us with numerous challenges as a society. The incessant advancement of technology allows us to reduce distances and be more effective in our tasks. We are in a situation resulting from an increasingly accentuated globalization and commodification of human dynamics. However, although advances in technology represent an improvement in the quality of life of the human being, they have not been able to solve problems of humanity such as inequity in access to economic and cultural goods, ethnic or religious conflicts, or the detriment of the culture or history as accessory topics in a world where only knowledge translatable into financial returns is considered useful.

It is in this context that UNESCO (2014) emphasizes the importance of cultural heritage. This includes those vestiges of the cultures of the past that have remained until our time. In the present, in which reality is constantly transformed, cultural heritage has the virtue of providing us with an anchor, a sense of security in the face of changes in the world, as well as a sense of belonging to the environment. In this way, our sense of identity with respect to our own culture is reinforced.

Cultural heritage, such as the heritage represented, mainly, by ancient towns or cities, is a clear example of how this sense of belonging is generated. In the current context of capitalism, exacerbating the immediacy of mass consumption, Páez-Barrera (2011) points out that the speed of the use and disposal of things generates the loss of historical memory. The historic center of a city then becomes a kind of library of references to the past where we can find answers about who we are and what our history and culture is.

Additionally, UNESCO (1982) points out that access to other cultures allows us to contrast and enrich our values by nurturing our own culture and keeping it dynamic and alive. It also emphasizes that the enjoyment of culture should not be the privilege of an elite. Instead, cultural heritage must be disseminated and enjoyed by all, generating a cultural democracy.

Cartographic heritage

Since it was conceived and until the 1970s, the concept of cultural heritage mainly encompassed old buildings (UNESCO, 1972). However, the concept has expanded to include all entities that support memory (Interna-

tional Conference on Conservation, 2000). In this context, the concept of cartographic heritage arises, made up of maps and other artifacts produced by cartography. Given that they support memory, as (Hruby et al., 2006) affirm, cartographic heritage is a cultural heritage worthy of being conserved for the future.

New challenges arise from this approach in the administration of old cartography. In the libraries and institutions where maps and other cartographic artifacts are stored, a process of storage, organization, and conservation of original documents has been developed. However, the heritage status that these objects have, means that their administration requires additional actions.

Livieratos (2008) regarding the efforts of the International Cartographic Association regarding the management of cartographic heritage, identifies additional tasks of administration of old maps. First, as has been done before, the map requires that its material version be preserved, restored, and protected so that it remains available for future generations. Additionally, being an element that helps to explore the past, the contents of the map need to be studied in a process that allows their understanding and interpretation. Finally, as culture is a universal right, the map requires a communication process that allows its access and dissemination to the public.

When it comes to the original material, these tasks are carried out in different environments and through different strategies. The preservation of the original is carried out by experts in the handling of antiques. The study of the document is carried out in the institution by experts who gain access to the document. Finally, communication to the public takes place through exhibitions of facsimiles or copies of maps or in a limited way in museums.

At present, the preservation of cartographic heritage can also be achieved through the creation of digital copies, which no longer present the risks of deterioration and destruction of the support material as occurs with the original copies. Then, thanks to georeferenced systems (GIS), analysis and studies can be carried out on the digitized map. Finally, through the creation of digital galleries, access to cartographic material can be allowed.

Historical geoportals

There is abundant literature regarding historical study projects supported by ancient maps. However, in most cases, although the map is the basis

for obtaining results and drawing conclusions, its analysis in the GIS environment remains accessible only to the researcher. In such cases, the task of disseminating this cartographic heritage remains pending. For this, Internet sites are required to present the maps as historical geographic information. For this reason, they can be called historical geoportals.

Additionally, as they are heritage objects, the way they are presented should emphasize the fact that these maps describe a reality from the past. (Livieratos, 2008) referring to (Chippindale, 2007) remarks that what makes heritage different from archeology is the fact that the former is related to how elements of the past are seen and understood today in our time. In the case of maps, this contrast can be achieved by comparing the geographic area represented in the cartographic artifact with a modern map.

Ancient maps to understand the territory

Governance consists of the exercise of political power from the articulation of government entities, society and the private sector. In this way, citizens become participants in the generation and application of public policies (Herrera-Franco, 2016). Regarding the administration of heritage, governance allows citizens to become agents of protection of the heritage environments in which they live.

UNESCO (2014) observes that if the community actively participates in the generation of a management strategy and its execution, less external controls, and monitoring will be required. Furthermore, heritage contributes to the well-being and happiness of individuals, to environmental sustainability, and potentially to the increase of social and economic capital.

However, for both authorities and citizens to manage heritage assets, they need to know their history. This way they can determine its authenticity and subsequently its integrity. Documents such as old maps, but also photographs, books, and other texts help in this task. Additionally, knowledge of history generates a greater sense of belonging and identity in citizens.

Cartographic heritage in the digital world

As mentioned, the administration of cartographic heritage is currently facilitated by computer systems. To achieve this, a series of requirements is

necessary, starting with the digitization of the original documents. Later, as Cascón-Katchadourian et al. (2018b) explain, the georeferencing and web publishing processes allow creating environments where the maps can be compared with a modern counterpart and, at the same time, be accessible both by the general public and by researchers interested in these documents. These steps will be reviewed below.

Digitalization

Ancient maps in their original material support are fragile. These documents printed or drawn on paper or similar materials are susceptible to destruction either by use or by natural elements. To prevent this, the institutions in charge of the original copies digitize their contents. This implies a logistical challenge, for these institutions, that can be effectively assumed by encouraging public policies that promote the preservation and dissemination of cultural content, articulating the work of cultural and academic organizations.

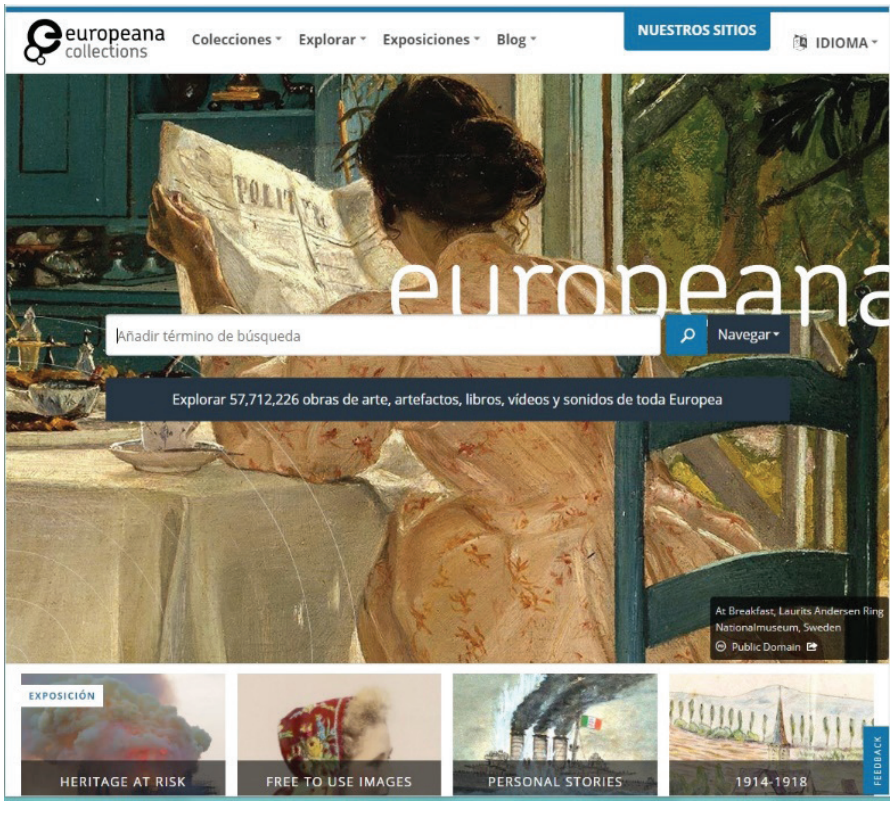
In Europe, for example, the potential to handle digitized cultural content has been seen since the popularization of the computer. Already in 1984, the European Parliament aware of the importance of libraries to achieve real social progress in the countries of the European Union approved the Schwencke resolution with the intention of creating a unified European library. This was followed by an action plan in 1989 which included the introduction of the latest bibliographic technologies and standards, but also fostered cooperation between institutions to share resources and create contact networks. These objectives were later put into practice in various action projects in the following years (Chen, 2012).

In particular, at the technological level, the European Union saw the advantages and potential of the digital environment. For this reason, it has suggested the preservation of heritage assets through their digitization (The European Commission, 2011). As a result of this vision, the Union encourages the creation of public policies in member countries to make efforts in this regard.

Additionally, it is suggested that the member states allow the cooperation of their institutions related to heritage management so that they work together, exchange technologies, and share equipment and experiences. It

is pointed out the importance of this cooperation to enrich the process and in turn avoid duplication of efforts. With this precedent in Europe, there was a joint work process of various institutions to achieve the objectives of digitization and dissemination of cultural assets. One of the results of these efforts was the creation of a website by the conference of European national libraries (CENL): The European Library. This site housed more than 28 million images of heritage elements from 48 national libraries (CENL, 2016).

Figure 1
The European Library



The success of this portal led the European Commission to continue the project with a new website: European collections. This portal presented in Figure 1, collects more than 57 million digital images of pieces of art, books, films, and other artifacts from museums, galleries, libraries, and archives of the countries of the European Union (The European Commission, 2011), (European Union, 2019). A large part of the contents of The European Library was integrated into the new site since the digitization and storage of the images were made based on standards compatible with the new site. However, despite cooperation, there are still disparities between member countries, with per capita expenditure for libraries ranging from € 35 in Denmark to € 9 in Bulgaria (Chen, 2012). Cooperation, then, does not solve the problems but is a starting point despite the differences.

Georeferencing

Georeferencing an old map consists of assigning it a modern coordinate system that allows it to be combined with other cartographic representations or with geographic data from the same area. This means that the ancient map can be embedded on top of a modern one, such as the one from Google Maps, and combined with other ancient maps of the same area or with other geographic information such as environmental or urban data (Cascón-Katchadourian, Ruiz-Rodríguez, et al., 2018b).

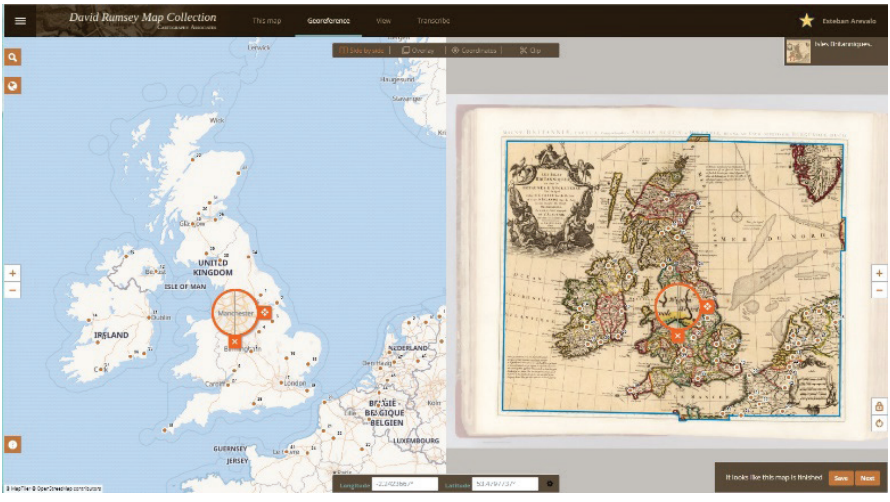
This process is generally carried out using Geographic Information Systems (GIS). In the case of ancient maps, georeferencing requires knowing a series of reference points on the map and also their location on a modern map with a cartographic projection (Dávila & Camacho Arranz, 2012). The landmarks can be buildings, crossroads, islands, or any other entity that is recognizable on the two maps.

However, georeferencing imposes additional requirements on digitization. This requires that deformations on the map surface be minimized when digitizing. For the digital copy to reflect the contents of the original map, it is also necessary to preserve the colors of the map and its original scale (Livieratos, 2008).

There are tools that allow georeferenced maps that are already published. Furthermore, it is possible to allow users of a digital map gallery to carry out the process. One of the best known and most complete tools for this

process is Georeferencer (Cascón-Katchadourian et al., 2018a) (Fleet et al., 2012). Figure 2 presents this tool which requires a payment for its implementation on a website.

Figure 2
Georeferencer



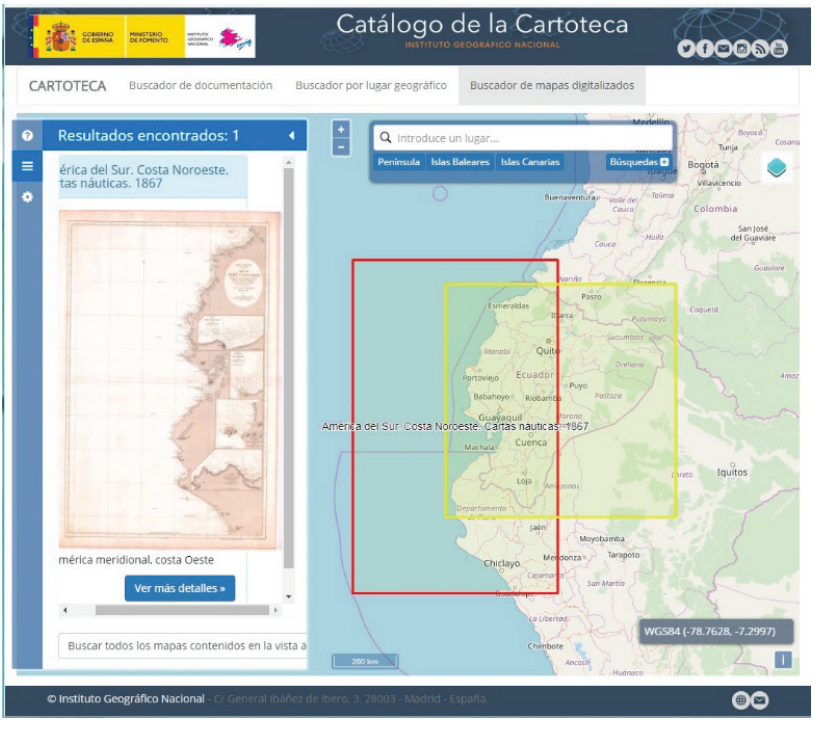
Search

In digital libraries, the search for texts is carried out using keywords. The process scans the contents or metadata of documents and books in the library and returns the items that match. Searching for cartographic materials only on the basis of text means using only the toponyms or place names that are represented on the map and that have been added to the document metadata. This however is not optimal as those names may repeat themselves, change over time, or the map may include only a few associated names for searching. Therefore, the maps require different treatments.

Instead of searching by text, it is possible to perform a geographical search. This is done on a modern world map on which one can increase the scale to get closer to a certain area. A series of rectangles outline the coverage of the maps that partially or totally represent the selected area on the screen (Oehrli et al., 2011).

The MapRank indexing mechanism stands out as an implementation of geographic search. (Oehrli et al., 2011; Cascón-Katchadourian et al., 2018a). Examples of the implementation of a map search based on the area they represent are the map library of the National Geographic Institute of Spain (IGN, 2019) and the OldMapsOnline project. Here the modern world map allows us to retrieve digitized maps according to the area that is maximized on the screen (Figure 3).

Figure 3
National Geographic Institute of Spain



Publication

GIS environments have allowed projects to be created based on historical geographic information including ancient maps. In these applications,

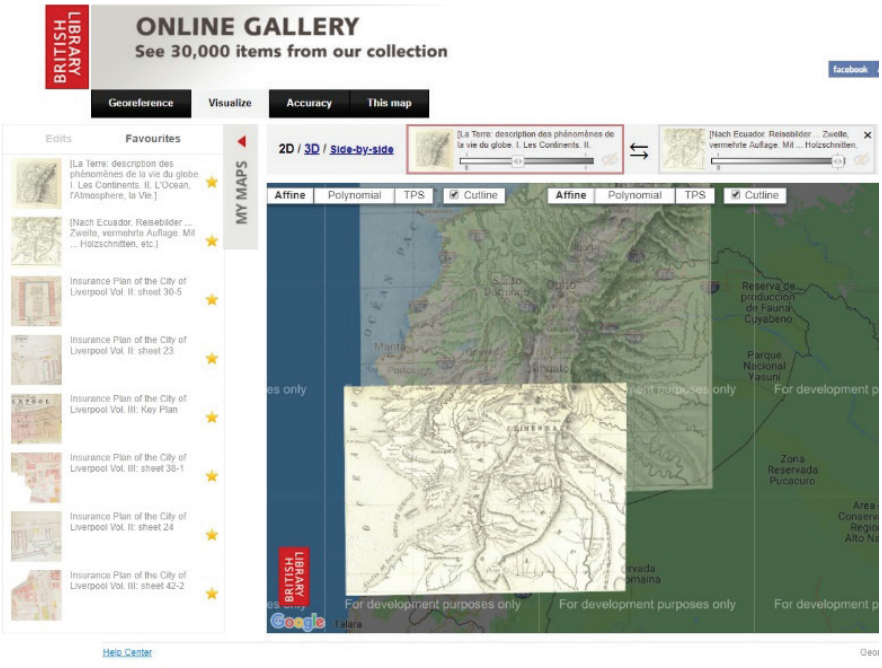
researchers can store, analyze, interpret, and present this information. Projects of this type, oriented mainly to history, are called historical GIS (Gregory & Healey, 2007; Offen, 2013). However, many of these applications are unpublished and are used only by researchers.

GIS have been desktop applications since their inception. Although ESRI, the leading GIS company with its ARCGIS system, has already developed a web version, georeferenced systems are not optimal for public use due to their complexity and, as in the case of ARCGIS, because of their cost. It is therefore necessary to create web portals that allow the maps to be published on the Internet and provide them with the necessary functionality for their correct interpretation and analysis by the public. On the other hand, such websites should be simple and lightweight in contrast to the diverse provision of controls available in a GIS. Furthermore, technologies such as Google Maps or Open Street Maps have changed the expectations of map users, who expect versatile and interactive applications.

For all this, limiting themselves to the creation of digital galleries to present maps on the internet, detracts from the potential they have when they are handled in GIS environments. Therefore, map sites must have additional functionality to make use of georeferencing and allow the search and display of the map not only as an image but also as geographic information, represented on a modern map by using its coordinates.

Following the efforts of the European Library and Europeana, in 2008 the DIGMAP project was launched. This included a series of modules for indexing and consulting old maps, based on place names or other data in the document. It was funded in part by the European Commission and was expected to be Europe's main map repository (Borbinha et al., 2007). However, once the time allotted to the project had ended, it was not continued. In its place, other initiatives have emerged in European countries such as the map library of the National Geographic Institute of Spain (IGN, 2019), (Radovan & Šolar, 2010), the National Library of Scotland (National Library of Scotland, 2019) or the British Library (The British Library, 2019) whose historical geoportal appears in Figure 4.

Figure 4
The British Library



A case of cooperation between European institutions is the Old Maps Online project (Klokan Technologies, 2019). This consists of a web portal to search for maps based on your coverage area. This system, developed in open source, brings together the collections of various institutions throughout Europe such as national libraries and universities. A map coverage area search tool allows searching for maps that are not georeferenced and whose original website only implements text searches. Additionally, it is possible to concentrate various types of content in a single interface, reducing implementation efforts in the other participating institutions. However, this collaboration is possible due to the fact that the institutions handle similar standards for their content.

Figure 5
Old Maps Online

In order to support this interoperability, the European Commission (The European Commission, 2011) recommends that institutions develop digital galleries for their cultural assets, the use of standards for digitization, and the creation of metadata.

Ancient cartography in Ecuador

Ancient maps

The maps in their modern conception arise with the concepts created in classical Greece by Ptolemy (Harley & Woodward, 1987). Since then and with ups and downs, cartographic production has represented Europe, Asia and Africa on countless maps and navigation charts. However, it is not until the year 1500 that a map by the cartographer Juan de la Cosa includes the first representation of the American continent (Martín-Merás Verdejo,

2000). Thus, the cartographic production representing the regions of America covers approximately the last 500 years, restricting the analysis of old maps to this period.

In the case of Ecuador, colonial maps are scarce and mainly represent representations of large regions of South America. Only in 1927 with the creation of the Military Geographical Service, the forerunner of the Military Geographical Institute (IGM), did a methodical mapping of the Ecuadorian territory begin (León-Pazmiño et al., 2016). Since then, maps in Ecuador have helped create a perception of the nation. However, as has been commented on the nature of the map, its creation, and use has been politicized and these cartographic elements have not been neutral scientific instruments (Capello, 2010).

The maps of Ecuador have been compiled and analyzed in various publications. From reviews of colonial maps, seen only as scientific works as in Latorre (2017), to more complex analyzes such as that of Sevilla-Pérez (2013) or Capello (2010) whom go through all the national cartographic material. In the latter, although there is a critical analysis of the maps and their particularities, the images of the maps are accessory elements, and the reduced format of their reproduction prevents an analysis beyond that already carried out in the text. Several projects have compiled old maps for georeferencing and presentation as a gallery (Reyes et al., 2017). However, these have been one-off projects and have not received additional functionality after their creation.

Historical geoportals

Unlike Europe, in developing countries, the introduction of information and communication technologies in libraries has been slow. This is due to the fact that there are many other needs to cover, from pressing issues such as the fight against illiteracy, to more specific tasks such as the protection of original documents in cultural institutions. The creation of digital galleries thus faces challenges due to lack of resources, but also other barriers such as language, with a clear majority of software environments being in English or logistics such as limited Internet access in certain regions.

International cooperation between institutions, as in the case of Europe, can help to largely solve such problems (Alpay-Aslan, 2012). An example

of integration between libraries in our region is the Ibero-American National Libraries Association (ABINIA) of which various institutions in Ecuador are part. For this association, the National Library of Spain (BNE) has created a web portal called the Ibero-American Heritage Digital Library (ABINIA, 2019). This unified portal allows access to the catalog index cards of the contents of the institutions or, in some cases, to a digital version of the same, depending on the institution that has the original document. Although there are various maps among the digital content that this portal offers, these still require a higher quality of digitization than the functionalities described above for exploring maps.

Cuenca

Most of the cartographic material of Ecuador throughout the colony and during the 19th century corresponded mainly to national or regional maps. However, the city of Cuenca was represented in diagrams and sketches (Albornoz & Achig-Subía, 2008). For more recent years there are more detailed maps and cadastral information. These documents have a geographic element and their digitized copies could be georeferenced and integrated into a GIS environment.

The city of Cuenca has the status of cultural heritage of humanity. As a result, efforts have been made to register heritage assets and monitor their status. However, Heras et al. (2016) pointed out that the collection of information related to heritage was carried out in different periods of time and by different institutions, creating great heterogeneity in the type of data and making it impossible to combine them. Additionally, they suggested the need to create a centralized environment for this information.

Subsequently, a unified system for support in decision-making on heritage assets was implemented with information on each infrastructure and its state of conservation (Siguencia-Ávila & Rey-Pérez, 2016). However, said application does not make use of historical resources such as maps or photographs. Additionally, it is implemented in a GIS system and is not published on the web. Therefore, it is intended only for the internal use of the institutions in charge of managing the assets.

Additional contents

In addition to the ancient cartography, there are other historical elements that can obtain a geographical reference. (Cascón-Katchadourian et al., 2018a) explain that other digitized historical elements such as photographs, posters, sketches, etc., can represent a geographical place and therefore can be assigned to a certain pair of coordinates.

Various historical material is found in the archives of the institutions of Ecuador. For example, the IGM has physical copies of its cartographic productions (León-Pazmiño et al., 2016) and other institutions have created digital repositories of their collections such as the National Institute of Cultural Heritage (INPC, 2015). These documents could be integrated into a historical geoportal that allows the public to search, compare, and contrast the contents according to their geographical location. In this way, the experience is maximized and visitors are allowed to browse the contents in an orderly manner, either chronologically or geographically.

Conclusions

In Europe, various tools have been created for the dissemination of documentary heritage, including cartographic, using the latest technologies for the development of web environments. These portals have arisen both at the initiative of the institutions and as a result of a state stimulus and based on public policies aimed at the dissemination of culture and inter-institutional collaboration. This in turn is the result of a process of integration between countries within the European Union.

Inter-institutional cooperation policies have allowed more than the participation of various institutions in the development of tools, the exchange of knowledge and technology. This achieves standardized and higher quality results with less effort.

In Ecuador, various public and private institutions have historical material such as maps, but also sketches, plans, photographs, etc. These documents represent a place on the surface and can be associated with geographic coordinates. Therefore, this documentary heritage could be incorporated into a historical geoportal that pools together the funds of various institutions emulating similar projects such as those reviewed in this article.

The creation of a web environment that allows access to historical documents for Ecuador would have the benefit of allowing us to know the history of the place where we live, but also to value the heritage that still remains, the testimony of the past. This is of particular relevance for cities with a heritage character such as Cuenca, where historical documentary collections play a fundamental role in making their citizens aware of the history of the place where they live and the value of the cultural heritage of their man-made environment. Only with this knowledge can effective governance of the heritage be carried out by its inhabitants.

Bibliography

ABINIA (2019). Biblioteca Digital del Patrimonio Iberoamericano. https://bit.ly/34hPTPV

Albornoz, B., & Achig-Subía, L. (2008). *Planos e imágenes de Cuenca*. I. Municipalidad de Cuenca. https://bit.ly/3hfc39h

Alpay-Aslan, S. (2012). 1.5 Use of Technology in Libraries in the European Union Towards 2020. In *Libraries in the early 21st century. Volume 2: an international perspective*.

Borbinha, J., Pedrosa, G., Reis, D., Luzio, J., Martins, B., Gil, J., & Freire, N. (2007). DIGMAP – Discovering Our Past World with Digitised Maps. In *Research and Advanced Technology for Digital Libraries* (pp. 563-566). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-540-74851-9_70

Capello, E. (2010). Mapas, obras y representaciones sobre la nación y el territorio. De la corografía al Instituto Geográfico Militar. En V. Coronel y M. Prieto (Eds.), *Celebraciones centenarias y negociaciones por la nación ecuatoriana*. FLACSO Ecuador. https://bit.ly/3aFcuXV

Cascón-Katchadourian, J., Ruiz-Rodríguez, A.Á., & Alberich-Pascual, J. (2018a). Uses and applications of georeferencing and geolocation in old cartographic and photographic document management. *El Profesional de La Información*, *27*(1), 202. https://doi.org/10.3145/epi.2018.ene.19

Cascón-Katchadourian, J., Ruiz Rodríguez, A., & Román, A. Q. (2018b). Georreferenciación y publicación web de cartografía antigua en sistemas de información geográficos: requisitos para su evaluación y estudio de caso. *Rev. Gen. Inf. Doc*, *28*(1), 193-212. https://doi.org/10.5209/RGID.60810

CENL (2016). The European Library. https://bit.ly/2CPlXzq

Chen, C. (2012). 1.3 Technology Enabling Universal Access to World Heritage: Implications for Libraries. In R. N. Sharma (Ed.), *Libraries in the early 21st century. Volume 2: an international perspective*. De Gruyter Saur.

Chippindale, C. (2007). The oldest heritage: Mediterranean Classical, in a view from the north, and the heritage model it has created. In S. Antoniadou y A. Pace (Eds.), *Mediterranean Crossroads* (pp. 741-67.). Pierides Foundation.

Conferencia Internacional en Conservación (2000). Carta de Cracovia 2000 Principios para la conservación y restauración del patrimonio construido. In *Cracovia 2000* (p. 6). Cracovia. https://bit.ly/31et25S

Dávila, F.J., & Camacho-Arranz, E. (2012). Georreferenciación de documentos cartográficos para la gestión de archivos y cartotecas: propuesta metodológica. *Revista Catalana de Geografía*, *XVII*(46), 9. https://bit.ly/3iXjt13

European Union (2019). Europeana Collections. https://bit.ly/3iR12eC

Fleet, C., Kowal, K.C., & Pridal, P. (2012). Georeferencer: Crowdsourced Georeferencing for Map Library Collections. *D-Lib Magazine*, *18*(11/12). https://doi.org/10.1045/november2012-fleet

Gregory, I.N., & Healey, R.G. (2007). Historical GIS: structuring, mapping and analysing geographies of the past. *Progress in Human Geography*, *31*(5), 638-653. https://doi.org/10.1177/0309132507081495

Harley, J.B., & Woodward, D. (1987). Preface. In D. Harley, John Brian Woodward (Ed.), *History of Cartography: Volume One - Cartography in prehistoric, ancient, and medieval Europe and the mediterranean* (p. 7). University of Chicago Press. https://bit.ly/34jxwKq

Heras, V., Barsallo-Chávez, M.G., Abril, C., & Briones, J.C. (2016). Heritage inventory as the base for a monitoring system in the world heritage city of Cuenca. In *Structural Analysis of Historical Constructions: Anamnesis, Diagnosis, Therapy, Controls* (pp. 181-184). CRC Press. https://doi.org/10.1201/9781315616995-23

Herrera-Franco, G. (2016). La Importancia de la Gobernanza Participativa y su Incidencia en el Desarrollo Local. *FCSHOPINA*, *89*, 5. https://bit.ly/2ElNdG9

Hruby, F., Plank, I., & Riedl, A. (2006). Cartographic heritage as shared experience in virtual space: A digital representation of the earth globe of Gerard Mercator (1541). *E-Perimetron*, *1*(2), 88-98. https://bit.ly/31gyDsy

IGN (2019). Catálogo de la cartoteca del IGN. https://bit.ly/3hhl8y3INPC. (2015). Fondo Nacional de Fotografía. (http://fotografiapatrimonial.gob.ec/web/es) (2019-07-18)

Klokan Technologies (2019). OldMapsOnline. https://bit.ly/31g0QQ5

Latorre, O. (2017). Los primeros mapas del país. *Ecuador Terra Incognita*, 32-41.

León-Pazmiño, F., Narváez, R., & Rubio, M.L. (2016). 87 años de Generación Cartográfica en el Ecuador, Información y Comunicación. *6ª Simposio Iberoamericano de Historia de la Cartografía*. Santiago, Chile. https://doi.org/10.13140/RG.2.1.1993.0483

Livieratos, E. (2008). The challenges of Cartographic Heritage in the digital world. In *Third International Workshop Digital Approaches to Cartographic Heritage* (p. 7). https://bit.ly/3iSoU1k

Martín-Merás, M. (2000). La Carta de Juan de la Cosa: interpretación e historia. *Monte Buciero*, (4), 71-86.

National Library of Scotland (2019). National Library of Scotland. Map Images. https://bit.ly/2Qa9tFx

Oehrli, M., Zollinger, S., Siber, R., & Přidal, P. (2011). MapRank: Geographical Search for Cartographic Materials in Libraries. *D-Lib Magazine*, *17*(9/10). https://doi.org/10.1045/september2011-oehrli

Offen, K. (2013). Historical geography II. *Progress in Human Geography*, *37*(4), 564-577. https://doi.org/10.1177/0309132512462807

Páez-Barrera, O. (2011). *Ver lo mismo, pero con otros ojos: iconografía arquitectónica de la Cuenca histórica*. *Revista Pucara*. Universidad de Cuenca. https://bit.ly/2FAOycA

Radovan, D., & Šolar, R. (2010). Geospatialization and Socialization of Cartographic Heritage. In M. Jobst (Ed.), *Preservation in Digital Cartography* (pp. 161-178). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-12733-5_8

Reyes, D., Salgado-Chávez, P., & Padilla, O. (2017). Georreferenciación de mapas históricos de Sudamérica para el desarrollo de una galería de mapas web. *Conferencia Iberoamericana de Sistemas de Informacion Geografica*. Cuenca, Ecuador. https://bit.ly/2EkPDos

Sevilla-Pérez, A.M. (2013). *El Ecuador en sus mapas*. FLACSO. https://bit.ly/2Q8zfd5

Siguencia-Ávila, M.E., & Rey-Pérez, J. (2016). Heritage values protection, from the monument to the urban dimension. Case study: the historic centre of Santa Ana de los Ríos de Cuenca, Ecuador. *The Historic Environment: Policy & Practice*, *7*(2-3), 164-176. https://doi.org/10.1080/17567505.2016.1172785

The British Library (2019). British Library, online gallery. https://bit.ly/3lalCJ1

The European Commmission (2011). *Commission Recommendation of 27 October 2011 on the digitisation and online accessibility of cultural material and digital preservation*. Brussels, Belgium. https://bit.ly/2E2ZEa9

UNESCO (1972). *Convention Concerning the Protection of the World Cultural and Natural Heritage*. Paris. https://bit.ly/3aKh9Yk

UNESCO (1982). World Conference on Cultural Policies. *World Conference on Cultural Policies: final report* (p. 236). Mexico City: UNESCO Digital Library. https://bit.ly/32biaVK

UNESCO (2014). *Gestión del patrimonio mundial cultural*. https://bit.ly/3aH67TT

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