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Digitization of World Heritage Sites of Iran as a Tool for Facilitating Online Access During Worldwide Pandemic: Case Study of Pasargadae World Heritage Site

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ABSTRACT

Purpose

Cultural heritage digitization facilitates the preservation of culturally valuable objects, entities, or items into a digital form allowing more comprehensive and concurrent access to such objects. It becomes more significant for overcoming the constraints associated with physical access, especially during turmoil, disasters, and pandemics like COVID-19, where physical interactions are almost restricted. Covid-19 restrictions and resultant social distancing protocols impacted nearly every facet of human life. Galleries, Libraries, Archives, Museums, and heritage sites across the globe were also affected as they were closed for the general public.

Therefore, the study explores the importance of making diverse cultural heritage information available online and accessible to the broader user community and provisions for data security through proper backups, setting user privileges, and maintaining necessary updates.

Design/Methodology/Approach

The study selected Pasargadae world heritage site in Iran as the study area by analyzing the database maintained and available for consultation. Further, the study attempts to highlight the advantages associated with the digitization of cultural items, including manuscripts, images, monuments, sites, etc. It also highlights prerequisites for managing such information online effectively using digitization.

Findings

Given the state of cultural heritage in Iran, digitization is still in the infancy stage. It is necessary to develop well-equipped policies, technological infrastructures, including high-speed internet, scanning machines, high-resolution digital cameras, and servers with high capacity processing for digitization. Besides, adequate funding and significant management concerns are needed to address various ethical and privacy issues, including copyright concerns associated with Iran's cultural heritage digitization process.

Originality/value

The work is a thorough attempt towards surveying Pasargadae world heritage site to understand the basic requirements for creating an online information delivery portal through the digitization of rich cultural heritage sites for enabling access even in virtual mode.

Keywords: digital technologies, digital humanities, cultural heritage, world heritage, database, COVID-19, Pasargadae, Iran.

1. INTRODUCTION

Regardless of the impact of terrorism, illicit trafficking, and climate change on cultural heritage, the COVID-19 pandemic greatly impacted our movable, immovable and intangible cultural heritage. It will continue to do so in the coming months as the countries across the globe are findings means to overcome the impact of Covid-19 on every aspect of human life. Nowadays, within the circumstance that widespread influences every element of our lives, digitization is getting to be a center stage for the cultural heritage collection and a modern strategy for wider heritage access opportunity for scholars, educators, students,

and other stakeholders to be able to proceed their work (Besser 1999, Ezeani & Ezema 2009, Stojićević 2020).

Within the field of digital cultural heritage, numerous studies have been done, and various methods and techniques have been used for creating digital resources for cultural heritage items over a decade (Hermon 2007, Abd Manaf 2008, Haegler & et al. 2009, Ruotsalo & et al. 2009, Manžuch 2017, Pedersen & et al. 2017, Tamborrino & et al. 2017, Boamah & et al. 2018, Khan & et al. 2018, Portalés & et al. 2018, Münster & et al. 2019, Balogun & Adjei 2019, Yari & et al. 2020). The European Union and later the United States promoted principles and recommendations to make cultural heritage accessible on the Web and protect it for future eras (Comité des Sages 2011, ARL 2010, Goretti et al. 2018, Economou & Bounia 2008, Hampson et al. 2013). In 2003, the session of UNESCO used a Law on the preservation of digital heritage. Art galleries and museums in the twentieth century began to exchange the electronic duplicates of collected artworks (Nikonova, & Biryukova 2017). Hence, as a well-known museum in the world, the British Museum made their collection includes about 8 million objects and 1.9 million pictures achievable through the internet during the recent pandemic. Moreover, Serbia's national museum, the oldest and most extensive museum in Serbia, contains a noteworthy and vital collection of historical and cultural items. This exhibition made a virtual tour for all online visitors aimed at a one-month closure time (Stojićević, 2020).

In Iran, some researches and projects have been done by a company named Mirasearka on several world heritage and national sites and museums (Parsinejad et al. 2021, Yari et al. 2020). Moreover, BOZAR and Goethe-Institute work with a group of twelve European and Iranian artists in the framework of an artistic research residency program on the valorization of Iranian material heritage. Their projects focused on the role of artistic creation in the valorization of archives and industrial heritage (*on the move*). Although these researches and projects were used high-tech and artificial intelligence, AI has many fruitful potentials that can be used in the digitization of cultural heritage. Data mining, machine learning, computer vision, and image processing are practical artificial intelligence techniques in this context that should be focused more on in the future.

Unfortunately, reasons like the unavailability of information in the absence of the data administrator, the lack of direct access to the information and the inability of experts to search for information, and data loss due to the low security of data management reinforced the sense of need for a comprehensive data management system.

The digitization of cultural heritage in Iran started a few years back in different cultural heritage archival sectors and institutes, each with its database model and property, but its implementation lagged behind other nations. Under the influence of the pandemic, Iran's world heritage sites were closed for several months and have faced challenges in some contexts such as management, conservation, restoration, presentation, monitoring, and even archaeological activities. So, it is time to perceive the importance of cultural heritage digitization and start its implementation without further delay.

This research aim is to investigate the significant challenges and opportunities of digitization by focusing on the Pasargadae World Heritage Site database project. Therefore, this study emphasizes the importance of digitization and online accessibility of heritage sites of Iran, as a tool for sustainable management during the pandemic situation and easy access to data without physical presence.

2. MATERIAL AND METHOD

2.1. STUDY AREA: PASARGADAE WORLD HERITAGE SITE

According to United Nations Educational, Scientific, and Cultural Organization (UNESCO), Iran as the home of the oldest civilization in the world stands at the 10th rank with 24 registered world heritage sites including 22 cultural and 2 natural sites (UNESCO 2018).

In this study, Pasargadae world heritage site has been selected as the study area. Pasargadae is one of the most famous pre-Islamic world heritage sites in Iran and the primary dynastic capital of the Achaemenid Empire, built up by Cyrus II the Great, within the 6th century BC (Mozaffari 2017, Mozaffari, 2014). This city is a 708 square kilometer area and is located in Madarsoleyman city, the center of Pasargad county between 30°21.267 north latitude and 53°20.465 east longitude. The area covers the 160-ha archaeological site of Pasargadae and was registered on the heritage list in 2004 as a fifth world heritage site of Iran. The research center of Pasargadae world heritage has been established since 2003 (Figure 1).
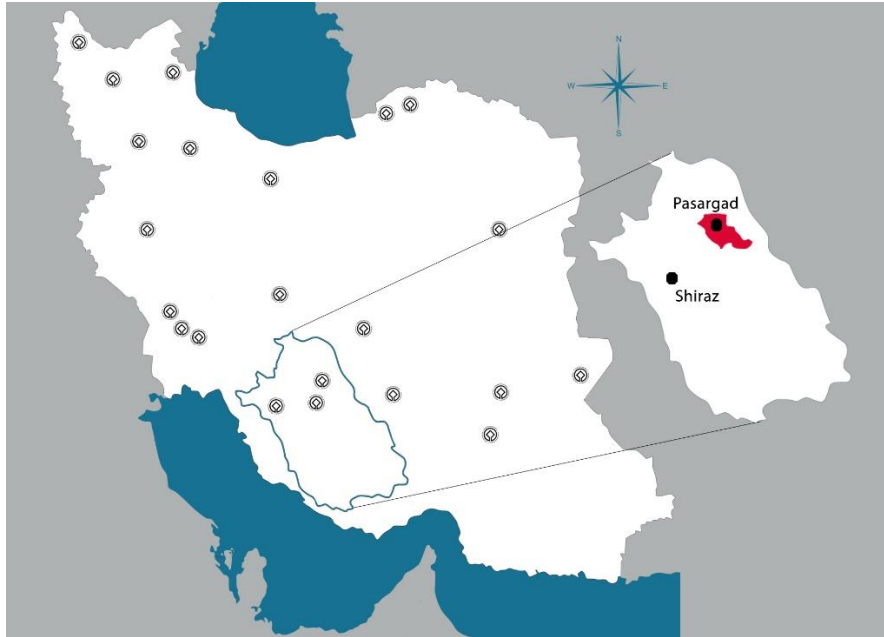

Figure 1. Location of World Heritage Sites within Iran and a sketch map of Iran, the location of Shiraz and Pasargadae Fars province

Source: Author 2021

In Pasargadae, like other world heritage sites of Iran, information fragmentation was a major obstacle in the efficient management of world heritage sites. The significance of Pasargadae for this study is that archives have been digitized since 2003 and can be noticed that Pasargadae is a pioneer in designing and using database application on the internal network scale not only to preserve information with enhancing security but also to make them more accessible for the staff.

2.2. METHODS

This study used a qualitative research method based on the interpretive paradigm. The case study was due to the weakness of using a digital application for archive management in world heritage sites. It was also a necessity to gain a better understanding of our situation in the digital world and to develop knowledge about using current high-tech to manage cultural heritage information. Pasargadae world heritage site was selected because it was the first site using the client-server application to solve their needs and according to their experience is the best choice to explore the challenges and opportunities of digitization as a tool for facilitating online access to the information and improve the security.

To solve the first obstacle, which is digitizing information, a database was designed and used in Pasargadae World Heritage Site since 2014. This databank was funded and supported by Istituto Superiore per la Conservazione ed il Restauro (ISCR) in Rome-Italia and Pasargadae World Heritage Site (PWHS) in Pasargad-Iran. The system architecture is client-server based on PostgreSQL, a free and open-source

relational database management system. Although this application is client-server and allows the users to search and access information directly through Intranet and indeed meets the necessity of the site offline, it does not apply to a large-scale archaeological site with a 160-ha area or a country.

Therefore, to meet the needs on a larger scale, the digitization of cultural heritage needs to produce homogenized databases and make them accessible via the internet. Further, there is also a necessity for improved security of information through proper backup and defining access privileges for different users to interact with the system. This will facilitate quick and easy access to the information by researchers, experts, students, and the public and play a significant role in on-site management, conservation, monitoring, risk management, and archeological activities.

3. RESULT

3.1. THE IMPACT OF COVID-19 ON THE CULTURAL HERITAGE

The COVID-19 pandemic, which has affected our country considerably since March 2020, has severely impacted the cultural heritage and tourism industry. The closure of museums, cultural institutions, world heritage sites, and other historic monuments deprives communities of culture and significant income. During a global lockdown, 90% of countries have closed their world heritage sites.

As the tourism industry plays a major role in the economy, the decline in the human and financial resources of cultural heritage ministries caused by the current pandemic has especially affected the operation and maintenance of sites where archaeological monuments are at risk. The medium and long term implications were important as many natural and cultural world heritage sites rely on tourism income for monitoring, conservation, and archaeological work.

The rate of visitors in the study area at the time of COVID-19 compared to the previous year reveals a sharped decline. According to Chart 1, it is clear that the number of visitors in 2020 compared with 2019 decreased sharply by about 87 percent. In terms of visitor type, it is noticed that the number of Iranian visitors dropped by about 86%, while it was approximately 96% for foreign visitors. Meanwhile, the tourism income for this site plunged about 99 percent. As Pasargadae world heritage site is one of the important and popular sites, it can be concluded that the decline in the number of visitors for other sites more or less could be the same as Pasargadae. This information reveals that the recent pandemic has heavily affected the economy all over the world (chart 1).
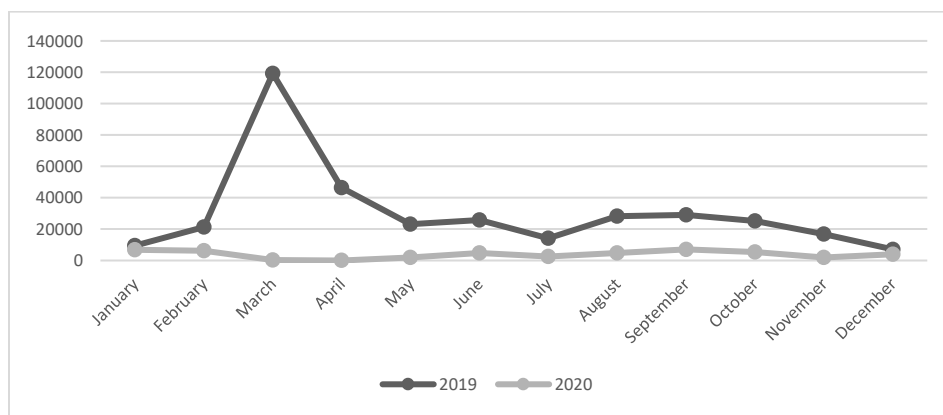
Chart 1. Visit rate in Pasargadae world heritage site in 2019 and 2020

Source: Gerami 2021

Besides, reduced security caused by human resource decline, which experienced in several countries, can increase the risk of theft of artifacts and illegal activities in cultural and natural sites

However, during the ongoing COVID-19 pandemic, the mitigation of negative impacts of economic downtown in the cultural heritage sector, like all other affected sectors of society and the economy, need government support and jump up the recovery process. In particular, there is no doubt that there is an urgent need to make a large investment in the future to remedy the catastrophic economic consequences of the pandemic. This is completely impossible without ensuring that past concepts, experiences, and teachings are incorporated. Through these efforts, technology solves many problems by allowing small and large institutes to digitize their materials. In fact, through the digitization of cultural heritage, people can access digital materials from around the world, no matter where they are.

3.2. TECHNOLOGIES USED IN THE DIGITAL CULTURAL HERITAGE

The digitization process changes documented materials that can be perused by individuals (analog) to a digital read-only format with the assistance of machines (computerized) (Brendan 2011). The digital world is the quickest growing and developing world. Cultural heritage institutions, world heritage sites, Libraries, Galleries, Archives, and Museums vary in sorts and sizes across the world, however, within the last decade, the majority of them use digital technology for digitization. Digitization methods depend on the sort of materials – text, photo, architecture, audio, video, etc., consists of specific hardware, software, and networks; technical infrastructures such as protocols, standards, and other related issues (for workflow, maintenance, security, upgrades, etc.). It can provide a new approach for scientific conservation, research, interactive exhibition, and the use of cultural heritage. Current advancements in computer networks, multimedia, virtual reality, and artificial intelligence have given a great establishment to the digitalization of cultural heritage information. The acquisition and perception of cultural heritage information are firmly linked with technologies such as digital picture-taking, 3D scanning, 3S (GIS, RS, and GPS), environmental knowledge, and wireless transmission.

3.2.1. Digital Photography

In heritage image acquisition, high resolution and high photorealism are two primary factors. Digital picture-taking is more suitable for heritage image acquisition than conventional photography since it is real-time to show and convenient to edit. Digital photography can allow people to review the results directly and provide the results instantly to ensure the quality of the photos. It provides high enough resolution to face the requirements of acquisition for cultural heritage information.

3.2.2. Two / Three-Dimensional Documentation

In Cultural Heritage, the wide array of applications offered by reality-based 2D and 3D modeling methods for digital technologies to scholars and a wide audience. Augmented Reality (AR) and Virtual Reality (VR) are considered to be modern technologies to protect the real artifacts for new generations. They are becoming increasingly important tools for the research, communication, and the popularization of cultural heritage.

Moreover, Photogrammetry, Laser Scan, and Image 360° are other two-three dimensional documentation tools. However, one of the main challenges with using these methods is the high costs associated with their widespread use (Lapp & Nicoli 2014, Patay-Horváth 2014, Younan & Treadaway 2015, Hermon & et al. 2017, Pedersen & et al. 2017, Barratt 2018, Kadi & Anouche 2020).

3.2.3. Geographic Information System

In the last decade, Geographic information systems (GIS) are used to monitor and manage cultural heritage for their protection. GIS is an invaluable instrument for processing geospatial data. Using the opportunities GIS and geo-information mapping allows obtaining a new product, including new historical information in the processing of historical archive sources. GIS-technologies as part of GIS do not only

allow to work with maps and text materials, but also visualize them in readable form (Jessop 2008, Earley-Spadoni 2017, Denil & et al 2018).

Web-based GIS prefers to make progress in other areas, such as location analysis and modeling, mobile services, 3D data access, and questioning forecasted that are expected to be evaluated for the most advanced project in the future. Although this technique is using in the field of archaeology in Iran, that is not enough when it is fruitful using as a basement of archives and providing a platform for all information specially to estimate risks.

3.2.4. Web Information System and Database

Web information systems and databases are other convenient tools for sharing the existing data with other interest groups such as scholars and public institutions. Sharing a database via a web-based (www) seems to be one of the rational methods. It provides an archive development of the historical materials, allows you to store documents without concerning the loosing and allows multiple users to access information from various locations simultaneously. Besides, with a web-based information system, local and regional heritage can be published worldwide (Sürül, Özen, & Tutkun 2003, Enkhbat 2016, Dragoni et al 2017). The lack of consisting a server for world heritage sites provides an array of concerns to use this tool for each world heritage site.

3.2.5. Artificial Intelligence

Artificial Intelligence (AI) is another useful tool for preserving cultural heritage. It can help to facilitate a faster process of tracking the lifespan of cultural heritage and the type of measures that should be taken to guarantee its future existence. New AI methods useful in cultural heritage digitization such as Image processing, Machine Learning, and Data mining have given occasions to produce innovative means for documenting, managing, and visiting cultural heritage. They allow cultural heritage management to be tackled, using innovative strategies with a more prominent awareness of the requirements of operators working in this sector (Patay-Horváth 2014).

Cultural institutions in numerous parts of the world contribute to digital projects for a few reasons: giving access, diminishing over-handling of materials, and advancing organization collections and visibility. By digitizing the collections by using these techniques, cultural heritage institutions can get to any data that is accessible to as it was chosen localized bunches of researchers. Inactive but profitable records permit users to rapidly and comprehensively look at their collections anytime, anywhere.

4. OPPORTUNITIES AND CHALLENGES

With the introduction of digital technology in information management (production, processing, exchange, storage, and dissemination), new challenges and opportunities were born to accessing information, effective cultural heritage conservation, monitoring, and information management of cultural heritage.

4.1. Opportunities of Cultural Heritage Digitization in Iran

One of the main research goals of this study is to explore the opportunities of cultural heritage digitization, include digitization of several initial sources of information. These sources include handwritten, printed, photographic, film, and sound sources to produce and available an online catalog with detailed metadata and digital materials linked with others - able to meet users' requirements with very different profiles.

Using a digital tool depends on the goal, changes from the overall view to particular components can be documented and improve the performance and clarity of heritage site management. The digitization of cultural heritage offers conservators the opportunity in a more comprehensive process. The new technologies allow the institutions, in charge of the preservation, knowledge, fructification, and management of cultural heritage, to bring the audience's interest towards the heritage that manages to

increase its value (Richards 1998, Warwick & et al. 2009, Brendan 2011, Wells & et al. 2014, Bachi & et al. 2014, Khan & et al. 2015, Lapteva 2016, Rabinowitz 2016, Tamborrino & Wendrich 2017, Portalés & et al. 2018, Adane & et al. 2019, Picone & Cappelli 2020).

As a result, digital technology makes it easier for professionals in charge of monitoring world heritage sites to obtain cultural and historical information about plant growth, climate change, and risk. These activities are necessary to catalog the heritage that includes the traditional cataloging and references related to scientific analysis, education, time and space collocation, virtual image (2D and 3D), and all other activities required for protecting the life of the artworks in the virtual environment. The organizations carrying such activities must incorporate efficient governance, instructive methods for the audience of the museums, adopt policies for the growth of cultural tourism, and an effective policy of expositions for temporary exhibitions.

Digitization promotes international digital cooperation between Iran and the rest of the world globally. It provides an opportunity to "virtually return" the cultural heritage that displaces from the areas and countries that produced it due to migration, armed conflicts, natural disasters, and so on. Moreover, digital objects are enriched with sustainable metadata and identifiers that increase the chances of storage, use and reuse over the next millennium.

Therefore, the growth of information and unlimited access to the internet creates new opportunities. Adults, children, and teens are used to accessing information and knowledge at any time at the click of a button. Digitization can create opportunities to invest in the technology infrastructure, and the staff can get highly benefited from access to digital applications that allow them to learn about novel technologies.

4.2. Challenges of Cultural Heritage Digitization in Iran

Although digital use may be of great benefit to the institution, the improvement and implementation of digitization policies for cultural heritage are seen as a challenge not only in Iran but also in many regions across Europe (Koller et al. 2010, Asogwa 2011, Brendan 2011, Enkhbat 2016, Adane, Chekole & Gedamu 2019, Yang & Han 2020).

At the regional level, some challenges remain, ranging from the management, preservation, and maintenance of digital cultural content to the availability of the material in digital formats, according to obvious principles, with the minimum resolution, interoperability, and rich metadata.

First of all, the digitization of cultural heritage remains largely dependent on initiatives and funding from cultural institutions (Asogwa 2011, Münster 2018). Lack of adequate budget and the excessive cost, including lack of funding opportunities for digital activities in world heritage sites of Iran, costs of regular hardware, software upgrades as well as the priority of budget for non-digital activities within organizations, and cost of a subscription to electronic databases make the cultural heritage digitization more complicated. Moreover, telecommunication infrastructures in some world heritage sites are either lacking or poorly developed.

Secondly, the lack of competency and skills (Asogwa 2011, Freitas 2017), especially in technical education in the use of new devices and services to digitize cultural content, is another major hindrance. Both technical knowledge and organization capacity and understanding of its benefits to the organizations, regions, and parts are required for digitization. Limited knowledge in understanding the benefits of digitization leads to low penetration of digital approaches.

Missing awareness because of a generation gap or digital divide in terms of digital fulfillment and frequency of use of digital tools likewise a general concern of or resistance to digital strategies or – vice versa – missing awareness of constraints and requirements within the digital world is another huge problem.

Due to inadequate information technology skills, many traditional archivists have a phobia for computers and find requirements of the digital age too difficult. Apart from the fund for digital infrastructure, a fund

to train archivists in all world heritage sites in digitization and maintenance of machine-readable format creates a big problem, too. For this reason, the establishment of a special training platform at the main world heritage office in Tehran to increase the professional's abilities to work in the database could be useful.

The other challenge is the lack of policy or copyright legislation (Asogwa 2011) to access digital files on the internet. It is necessary to obtain permission for digitization and if it cannot be obtained, digitization should not proceed. Planning to standardization, develop and implement written policies or workflows for digitization is essential.

Moreover, occasional losses of data due to disaster, system failures, or virus attacks is another challenge that digital media may face. Moreover, the obsolescence of some digital media such as storage devices is responsible for the long-term disappearance or inaccessibility to digital materials. Hence, the cost of high security and making backup routinely is essential.

Finally, the lack of the existing information including the GIS co-ordinates and descriptions, 3D model, photo and graphical documentation of thousands of cultural heritage assets (movable and immovable) in world heritage sites could be problematic in terms of providing budget and relevant services for documentation and registration of cultural heritage in all world heritage sites of Iran.

5. DISCUSSION

Recognizing and preserving the value of cultural heritage has been a major concern of UNESCO[1]. For this reason, the valuable role of digital heritage has been highlighted and defined as the use of digital media to preserve, protect, and study historical monuments. If we want to assess the positive impact of cultural heritage digitization, first of all, we should say it can be helpful in the preservation of the lasting value of physical heritage in the long run and make it easily accessible. Digital heritage can also facilitate in-depth research from different perspectives.

In general, regardless of challenges, the importance of cultural heritage digitization is an obvious task. Although Iran is home to one of the ancient civilizations globally, with 24 sites registered by UNESCO and around other 50 eligible for inclusion, the digitization of its cultural heritage has been either very slow or erratic. A critical aspect of cultural heritage digitization in Iran is to record information as a valuable resource and benefit from using it more efficiently during management, conservation, restoration, etc. Therefore, if this process is properly maintained and managed by archivists and experts, the archival resources will preserve information for the next generation. The institutions can introduce the world heritage sites to the public and face risks associated with failure to improve site management.

In literature surveys, various benefits of digitization such as preservation, promotion, and more access opportunity have been identified for cultural heritage (Dragoni et al 2017, Adane et al 2019, Asogwa 2011, Balogun and Adjei 2019). The proliferation of digital information, the desire to access materials in remote locations, reduction of printed materials, assistance in the promotion of collections and visibility of the archives, the quest for collaboration, partnership, and resource sharing between cultural heritage sites, and the increasing cost of similar document preservation, etc., are some of the factors driving the digitization of archives in the world heritage sites of Iran.

In Iran, each world heritage site, has a digital archive with its database model and attribute, which is not accessible from a distance. Today novel and high-tech technologies provide opportunities for users with faster, accurate, and more worldly services.

Through these efforts, appreciation of the need to create a platform for Iran's world heritage sites, homogenized databases, and make them accessible via the internet is growing (Figure 2). In particular, allowing experts, researchers, students, and the public to access information according to the defined permission, allowing them to engage in dialogue regarding history and tradition, sharing similar and diverse

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[1] International conference on digital heritage, Nov 2nd – Nov 5th 2020, Cyprus. www.euromed2020.eu

experiences, and permitting them to visit national memorials virtually with appropriate measures, will help people to enhance themselves mentally and emotionally.
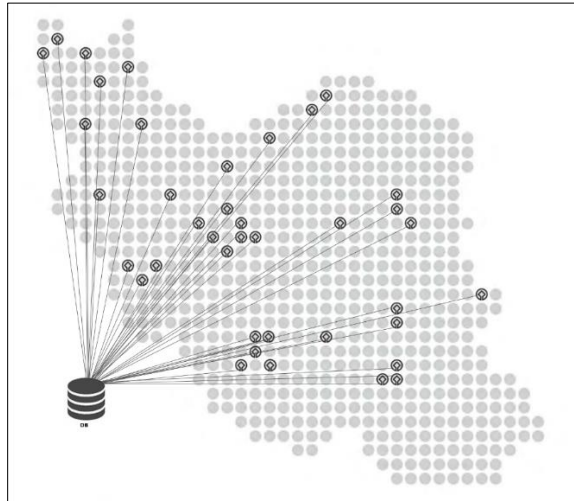
Figure 2. The recommended situation for Iran World Heritage Sites' Archive

Source: Author 2020

That is to say, nowadays, cultural heritage digitization can be a vital instrument in conservation, restoration, archaeological activities, research, and promotion of Iranian cultural assets - with the related technologies, such as 3D scanning and modeling, virtual and augmented reality, and artificial intelligence as favorable ways to help the sector preserve and showcasing cultural heritage. Moreover, in the field of conservation, restoration, risk management, and monitoring over the time of the pandemic, creating a semantic web-based database connected to the sensors installed on the site to record environmental parameters over time, allowing to measure the conditions, documented, analyzed and validated by a sensor, in sequence to avoid the time and cost of sending someone to take measurements to a distant area. It allows for much higher data density that is reachable through manual recording, providing data, and monitoring the cultural heritage site via the internet during a disaster or pandemic situation.

At the same time, disaster and pandemic have reminded the necessity of better understanding the fundamentals of the archaeological information process to address the challenges relating to the effective management and innovative and appropriate use of archaeological information. Access to the information and record them directly from each excavated or surveyed place without any limitation can prevent accumulation indoors and make the information more accessible. The accuracy could be increased because of in-time recording. In general, digitization is important with regards to the implementation of international standards in our cultural heritage management and ensuring access to information on cultural heritage, which in turn promotes raising public awareness.

According to the case study area, a tremendous degree of combination of multi-disciplinary, multi-period, and multi-sectoral data is required to manage world heritage sites. Management departments, museums, libraries, archives, and planning offices hold different knowledge collections on the historical and current status of the archives of world heritage sites. Lacks an integrated platform for this information leads to the inability to fully consider the multi-level value of cultural heritage in management decision making.

Therefore, digitizing archives of world heritage sites of Iran will enable researchers, experts such as conservators, and archaeologists to access digital materials, including texts, audio, images, graphics, and web pages in a wide variety of formats noteworthy enhancement to access the resources. These

improvements are reflected in researchers' satisfaction as they can remotely search for contents and download them to work anywhere regardless of the elimination of spatiotemporal barriers.

6. CONCLUSION AND RECOMMENDATION

Due to natural disasters and epidemics, it is easier to perceive the gravity of digitization in daily life. From the cultural heritage perspective, digitization has given us the ability to connect all world heritage site's databases and access significant information, cultural and historical collections, and monuments even during the epidemic. In conclusion, cultural heritage digitization is a novel initiative that all world heritage sites should get involved with as it provides new ways to search and access cultural heritage content. It also facilitates opening up collections and information to the researchers, experts, students, and public as users throughout the world to use and reuse. It is not only important to follow digitization, but it is also more important to foster the ongoing digitization process.

Given the state of cultural heritage, digitization is at a low level. It is necessary to develop well-equipped policies, technological infrastructures for information communication such as high-speed internet, high-resolution digital cameras, and servers with high capacity processing is needed to conduct digitization. Also, sufficient funding and high management concerns were needed. So that, ethical and privacy issues and copyright issues should have a great concern to improve the digitization process of cultural heritage in Iran.

ACKNOWLEDGMENTS

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