CHAPTER 9





IMPORTANCE OF MANAGEMENT OF CULTURAL HISTORICAL HERITAGE

Jasmina Poštin¹ ORCID ID: 0000-0003-3707-7522

Ivan Dudaš² ORCID ID: 0000-0001-7552-6160

Summary: This study's goal is to present the tools and methods which can be used in the management of cultural historical heritage. Cultural historic heritage is recognised as a social construct which is subject to change over time as an answer to different economic, social and political processes. With that being said, preservation of the heritage is no longer just about the preservation of goods, but also managing change. In that way traditional approaches are analyzed with the use of innovative tools to ensure the involvement of the public and determine the priorities for action and the plan for making decisions. It's been shown that the use of social media plays an important role and offers additional knowledge in the act of preserving cultural historical heritage. In this way the priority is given to the management of heritage, while at the same time instructing that institutions of cultural historical heritage should educate their employees about the full potential of the use of social media for propagating cultural heritage.

Key words: management directing, cultural historical heritage.

1. Introduction

The preservation of cultural historical heritage is becoming more and more important in the modern times and there's a need to define the strategies for which the goal is to manage and improve these goods. Because cultural historical heritage belongs to the heritage of mankind, it's necessary to preserve and protect

¹ Jasmina Poštin, PhD, Assistant Professor, University "Union – Nikola Tesla", Belgrade, Faculty of management, Sremski Karlovci, Serbia, e-mail: famzr.edu@gmail.com

² Teaching Assistant Ivan Dudaš, MSc, University "Union – Nikola Tesla", Belgrade, Faculty of management, Sremski Karlovci, Serbia, e-mail: ivandudas@gmail.com

(World Garden programme, 2009-2017). Natural disasters such as earthquakes and floods impact the preservation of the cultural historical heritage (Eppich & Grinda, 2019). Then there's firearm conflits, and there are studies which are about the preservation of cultural historical goods in cities which were damaged because of war (eg. Shcherbina & Belal, 2019), the effect of industrialization, etc. But during the last few years, solutions have been adopted, and the interest for preserving heritage was recognised also by conservationists, architects, construction workers and programmers. One of the examples of good practice was an approved project from the year 2007 which was approved by the World Heritage Committee (2007-2017). The point of this project was the development of integrated global access to identification and formulation of correct methods, technique and the politics for conservation and management for a sustainable development for the protected world architecture heritage (WHEAP, 2009-2017). The goal was to achieve the best methods, practice and technique for conservation using newly available resources, and also through capacity building to the level of countries. However, activities for advancing and protecting cultural historical heritage can be very expensive and funding needs to be dealt with very carefully for a continuous conservation and maintenance, as well as their lack (Eppich & Grinda 2019). To the preservation of cultural property contributes tourism as well (Akhmedenov & Sdykoy, 2021), because successful development of scientific, educational and cultural aspects of tourism, and therefore a massive amount of potential tourists directly depend on actions that have the goal to preserve cultural historical and natural resources of the area (Kvartalnov, 2000).

Studies were also done on the research on the personal experiences of people about the different qualities of cultural heritage, which helps suggest typological framework for holistic approaches managing heritage based on values (eg. Emmanuel & Sundaram, 2020). Concept of the involvement of people in the preservation and management of cultural heritage in international charters and documents was also studied (Nasrolahi, 2023). It can also be seen that more and more work is being put into the popularization of digital sources of cultural historical heritage, such as using mobile technologies and the presentation of resources in social media (eg. Poloyynchak et al., 2022). Different methods and approaches in the interaction between humans and computers, in order to find a effective and applicable approach in managing cultural heritage have been taken into consideration (eg. Nasrolahi, 2023).

Numerous scientific interrelationships between man and nature exist, which were studied in the sense of concepts and methods. In the near past, Millennial ecosystemic assessment (MEA) were widely studied in the natural and social aspects of science (MEA, 2005). It's been shown that human dependance for cultu-

ral favors of the ecosystem increase during the economic development of earth, while the dependance of providing favors of the ecosystem decreases (Hernandez-Morcillo et al. 2013). It's also been shown that recreation, tourism, ethical values and values of existing were made out to be the five most important ecosystemic favors (Island et al. 2008; Kreitler et al. 2013).

There were multiple studies carried out in the goal of defining methods, tools and technologies for the support of management of cultural heritage (Esposito et al., 2016). Managing cultural heritage using a new managerial approach, supported by technologies, could enable the identification of innovative methods (Esposito et al., 2016). Management in the sector of cultural heritage can be optimized using digitalization of data (Privitera, 2011) and managing information (Ding et al, 2007).

In order to implement the methods and actions for preserving cultural historical heritage a carefully defined financial plan for sustainability is needed. It's been shown that most objects of the world garden does not shine enough light on the questions of financial resources for renewing and conservation of cultural historical heritage and that a need for more dialogs about financial aspects of management exists. Given that all actors are met with big challenges through sustainable solutions (Poštin et al., 2020) and the effect of globalization has also had an effect on effective management in these uncertain times (Poštin et al., 2022).

During defining financial sustainability Eppich & Grinda (2019) came to these key components:

- · management for planning,
- · identification of income,
- analyzing expenditure,
- · administration and strategic planning,
- alignment and support of culture, educational and conservation mission.

Based on the listed problem, identified were circumstances which reach a higher financial sustainability (Eppich & Grinda, 2019):

- affordable and open environment for planning,
- · knowledge and education,
- positive perception about the importance of finances,
- · managerial autonomy and
- · public interest.

By the manual for production and implementation of business plans for rehabilitation of cultural goods (2014) the politics and strategy for financing has been considered and key questions were defined (Business plan for the rehabilitation of cultural goods: manual for production and implementation, 2014, 88):

- 1. What is the level of critical mass of financial resources that is needed for the realization of the project?
- 2. How is the structure of the source of financing and what shapes of financial participation are available?
- 3. Should you choose diversification or concentration of financial sources?
- 4. What are the risks in financing?

Because activities of advancement and preservation of cultural historical heritage are expensive for countries, Dolores et al., (2020) it's considered that cooperation with private entrepreneurs is necessary. Listed authors also think that a gap exists in the literature research in the financial aspect of sponsors, with that suggest that it's needed to (Dolores et al., 2020):

- acquire a sponsorship in order to enable sustainable recovery of historical and architectonic heritage,
- educate companies about the benefits and limits of investing in a cultural sponsorship,
- ensure tools for evaluation of financial sustainability investments in sponsorship.

2. Elaboration

When talking about cultural heritage it can be noticed that it is on the first line of anthropogenic climate change (Fatori & Daly, 2023, 1). On the basis of that it could be said that climate change should be a primary segment through which the preservation and management of cultural heritage is being looked after (Fatori & Daly, 2023, 1), where it is paramount needed to offer models and conceptual frameworks of investigating. One of the models is the CSCH approach.

The CSCH approach can support the development of tourism run by a community, but which is based on the cultural historical heritage (Su et al., 2016). The approach gives strategies for mitigating climate change. That way improving and gathering resources for economic opportunities for the good of future generations (Carmichael et al., 2020; Pearson et al., 2021; Shepherd et al., 2022).

CSCH can also bring priority setting for cultural historical heritage, such as improving historical shells of buildings and the use of answers based on nature, switching to low carbon and renewable sources of energy, use of building materials with low amounts of carbon (Fatori & Daly, 2023).

Fatori & Daly (2023, 3) define CSCH as an approach which grasps the idea that climate adaptation can develop and be used in the sector of heritage, in or-

der to at the same time lower the effect of climate change and the variability on materialistic and non-materialistic cultural heritage and ensure mutual use for diminishing climate change, at the same time increasing human safety on different spatial scales.

Streghtens human security

HUMAN SECURITY

CLIMATESMART
CULTURAL
HERITAGE

ADAPTATION

Reduces GHG emissions

Increases resilience against climate change

Picture 1. Conceptual framework for climate smart cultural heritage (CSCH)

Source: Fatori & Daly, 2023, 3

Fatori & Daly (2023, 4) suggest the following CSCH mechanisms for management which are applicable on all levels:

- 1. planning with multiple interested sides,
- 2. consciousness about values for a variety of cultural heritage,
- 3. intersectoral coordination and communication,
- 4. strong political will for transformative approaches,
- 5. investment in CSCH.

Then it can be noticed that in the past studies a variety of methods for managing cultural historical heritage were suggested, which were obtained on the basis of data from media services such as Twitter, Flickr, google maps and google earth (Ginzarly et al., 2018).

One of those examples of studies is a study of author Kilonzi & Ota (2019) which was questioning how cultural context influences the attachment of different cultural ecosystemic favors (CES), identifying aspects of behavior indigeno-

us knowledge which evolved on the basis of the analysis by social media (SNA). The analysis of social media as tools measures the web of relationships between humans and the institutions which are involved with natural resources. With the analysis of media it can be seen how society contributes to managing cultural historical heritage. It also serves as a good tool for the understanding of relational values and knowledge which bring different views on the world which are attributed to certain cultures (Brovn & Fagerholm 2015). SNA measures media relations between humans and groups that are traditionally developed for a long time and their relational values with natural resources and favors for the ecosystem (Kilonzi & Ota, 2019, 1p.). It has been established that media for social learning in different communities play a key role in the trade of information and knowledge between members in comparison to information of different technical experts. In its own defined media of interest, actors are attracted to one another and in that way form a strong social capital. Which brings to the division of similar beliefs and values that are in the end carried over to the next generation of media which shaped their heritage and identity.

Given that social media ensures big amounts of data to researchers for analysis in real time about which places and attributes people value in historical urban landscapes (Ginzarly et al. 2018), the next methodology for the analysis of data about location, display scenes and viewpoint markers for photographs which were uploaded on Flickr was displayed. This offers an insight on all aspects of the perceived character landscape which identifies heritage directed to people on the level of cities (p.1). The analysis consists of three key concepts in the context of cultural heritage and social media and reveals problems of heritage in the context of everyday life practices (Ginzarly et al., 2018, 6):

- 1. social media is a platform for heritage that is directed towards people,
- 2. the sharing of photographs on social medias is a form of cultural expression and
- 3. social media allows the creation of joint heritage and collective remembrance.

Collective Memory

People-Centered approach

Social Media

Shared Heritage &

Expression

Figure 1. Conceptual framework of cultural heritage and social media

Source: Ginzarly et al., 2018, 6

The method used for analyzing photographs tries to analyze the relations of data in order to gain an understanding for cultural historical heritage which is directed towards people, and then in order to gain an insight on everyday encounters with historical urban landscape. The process of analyzing data consisted of three steps, where the first processed geographic data, and then content and photo tags were analyzed (Ginzarly et al. 2018, 8).

Data Retrieval

API documentation: photos, geolocation, tags.

Fundamental understanding of people-centered heritage: individuals/flickr community

Processing of geolocation data & classification of photos by content.

Insight on everyday encounters with the historic urban landscape

Analysis of tags and a relational assessment of results from the analyses of spatial data, tags, and content.

Figure 2. Data analysis process

Source: Ginzarly et al., 2018, 8

This insight showed us that the total number of users (410), 62% of photographs post tourists, while 38% post local population. Most users posted between 1 and 5 photographs, while it was shown that tourists posted more than 20 photographs. On the figure no. 3 it can be seen that the peak of posted photographs was in the year 2011, and that a year later the number fell off drastically.

Evolution of the number of photos posted by date

700
600
500
400
300
200
100
0
2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016

Figure 3. Evolution of the number of photos posted on Flickr for Tripoli, Lebanon by date

Source: Ginzarly et al., 2018, 11

Ginzarly et al. (2018, 14) grouped scenes of photo displays and made classifications determined by experts. Values show that 71% of photographs show the materialistic aspect of cities, while 29% show the non-materialistic aspect. In this way the diversity of resources of cultural heritage on the level of cities can be seen, and also the interactions between person and the environment.

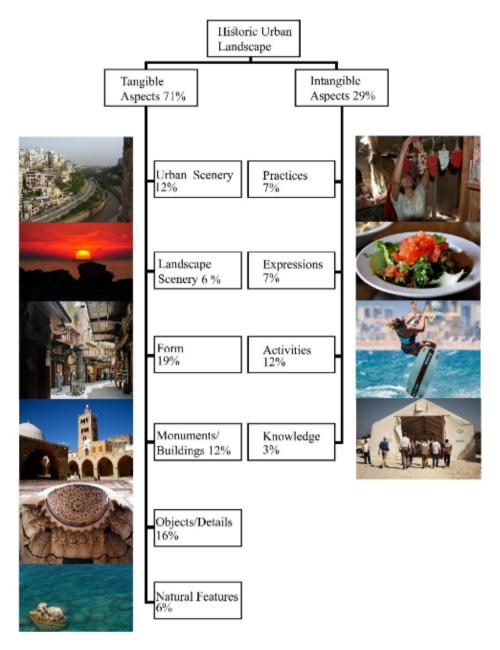


Figure 4. Classification model of photos by view scenes

Source: Ginzarly et al., 2018, 13

The suggested methodology for the analysis of data that Flickr brings, and that was applied in the study (Ginzarly et al., 2018) gives a foundation for the un-

derstanding of cultural historical heritage directed towards people in the context of uncommon and everyday landscape. As the result of a study it was determined that different analyses together complement each other in order to gain an insight in the everyday encounters with historical urban landscape (Ginzarly et al., 2018).

The structures of value propositions in business models of tourist locations of cultural heritage in the context of concepts for open innovation with the goal of identifying value offers in tourist locations and tendencies of managers to use open innovations were also considered (Szromek, 2022). This way 16 key values were identified in business models of tourist sites' cultural heritage. Then these values were classified into three groups: values that are proposed to the customer, values that the company takes over, and social values (Szromek, 2022).

A three-element division of generated, trapped and social values that was adopted on the level of literature was used. Besides that, variability that differs sites by their ownership (public, private, non-government organizations) was taken into consideration. Certain identified values in each category were displayed:

Chart 1. The importance of Value Propositions in Business Models

The Importance of Value Propositions in Business Models (Scale from —1.0 to 1.0)	General	Private	Public	Nongovernmental Organization
Value	s proposed to	customer		
Satisfying cognitive needs	0.76	0.78 ± 0.29	0.73 ± 0.29	0.81 ± 0.33
Satisfying the complementary needs of customers	0.34	0.37 ± 0.55	0.37 ± 0.44	0.27 ± 0.53
Satisfying cultural needs	0.24	0.20 ± 0.59	0.27 ± 0.56	0.04 ± 0.48
Satisfying the needs of relaxation	0.10	0.06 ± 0.53	0.16 ± 0.46	-0.08 ± 0.53
Satisfying the needs of rest, hunger and thirst	-0.11	-0.17 ± 0.59	-0.1 ± 0.56	0.00 ± 0.58
Values	captured by the	e enterprise		
Brand strengthening	0.56	0.65 ± 0.30	0.56 ± 0.29	0.54 ± 0.32
Satisfaction with the implementation of the mission	0.51	0.56 ± 0.25	0.47 ± 0.40	0.54 ± 0.38
Satisfaction of business customers (institutions)	0.46	0.50 ± 0.28	0.43 ± 0.33	0.5 ± 0.35
New markets, customer groups	0.39	0.46 ± 0.34	0.34 ± 0.37	0.46 ± 0.32
Operating income (profit)	0.20	0.41 ± 0.52	0.07 ± 0.53	0.38 ± 0.46
Acquisition of new exhibits/historical objects	0.08	0.09 ± 0.56	0.13 ± 0.53	-0.12 ± 0.65
	Social value	s		
Promotion of historical industrial heritage	0.79	0.78 ± 0.25	0.8 ± 0.27	0.85 ± 0.24
Acting as a symbol of the area	0.71	0.74 ± 0.35	0.68 ± 0.37	0.85 ± 0.24
Organization of tourist traffic so that the industrial heritage is preserved	0.54	0.54 ± 0.54	0.5 ± 0.48	0.54 ± 0.48
Involvement/activation of the local community	0.50	0.52 ± 0.35	0.51 ± 0.36	0.46 ± 0.52
Diversification of economic potential	0.49	0.56 ± 0.47	0.40 ± 0.50	0.58 ± 0.34
Revitalization of post-industrial areas	0.39	0.37 ± 0.55	0.39 ± 0.56	0.46 ± 0.43
Natural environment preservation	0.33	0.3 ± 0.58	0.31 ± 0.47	0.04 ± 0.48
Protection and presentation of local art.	0.29	0.26 ± 0.61	0.33 ± 0.56	0.31 ± 0.43

Source: Szromek, 2022, 9

Of the greatest importance were the following values: promotion of historical industrial heritage, satisfying cognitive needs, brand strengthening and organization of tourist traffic, in order to preserve industrial heritage. It was noticed that

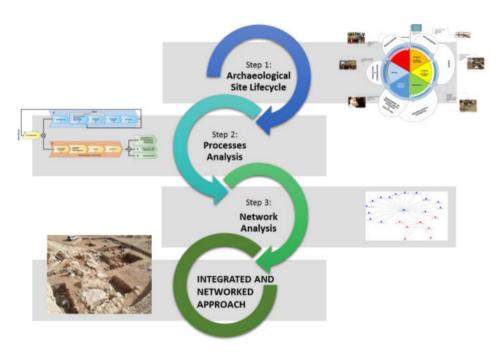
some of the values are in notable correlation between the attitudes of managers towards the exchange of knowledge when it comes to open innovation. Most managers that participated in the investigation were sure that revitalization of cultural heritage objects and business models of these locations should be in the form of open innovation. When it comes to the question of tendencies for open innovation, it's been shown that 71,4% of managers think that the primary method for revitalization of cultural heritage objects should be open innovation. That implies mutual knowledge sharing such as sharing applied solutions with potential investors. These findings mean that when the offer for the value of locations included: (1) satisfying non-tourist needs of the buyer, (2) acquiring new exponents, or (3) the intention for the location to be revitalized for social reasons, managers of the locations showed greatly weak support for trading knowledge when it comes to open innovation.

Cultural heritage demands innovative methods and techniques for more successful managing and valorization (Esposito et al., 2016). In the study Esposito et al, (2016) a new integrated and webbed approach was suggested which was based on the three-stage study cases belonging to the archaeologist context. In the above written approach authors Esposito et al, (2016) with the help of techniques for managing business processes (BPM), analysis of social media (SNA) in detail explained the life cycle of an archeology locality, their processes and web analysis. The goal of the study was to improve sustainable valorization of archeology sites, strengthen the link between cultural and local development and enabling participatory management of archeological heritage.

In the last few years the methods for social media analysis (SNA) were pretty applied in the archeology area (eg. Graham 2006; Bernardini, 2007; Munson & Macri, 2009; Mills et al., 2012).

The methodology was organized in the next phases, where the exit of each phase resembles a entrance into the next:

- 1. Archeology site lifecycle,
- 2. Process analysis and
- 3. Network analysis.



Picture 2. Phases of methodological approach

Source: Esposito et al., 2016, 8

The first phase that represents the archeology site lifecycle was made to show the historical and technical knowledge (diagnosis and prevention of risk, intervention, monitoring, valorization). The second phase is the process analysis using the BPM approach, which matches the modeling process on the basis of archeology locality lifecycle. The third phase is the analysis of social media (SNA), of which the web modules are focused on describing structural relationships between actors in order to see the effect that this structure has on the functioning of media and its effect on certain actors in terms of offering possibilities or limits. This allows the network analyzers to research the structure of resource flow. Results of the first and second phase show a criticality existing in terms of sparing integration of standard procedures, as well as in terms of innovative methods and tools for managing archeology lifecycles.

Then analysis shows an existence of actor processes which can be actively participated and affect the outcome. Based on that, a list of these actors in order of showing up in the archeological lifecycle, as well as their role description was given (Esposito et al., 2016, 15):

- Supervisor (evaluates the project and archeological documentation),
- Purchaser (government department, investigation institutes, etc.),
- General director (role of declaration ratification about the culturalist interest),
- Functional archeologist (supervision official with jurisdiction in terms of research),
- Science communities (research institutes or researchers),
- Archeologist / coordinator (archeologist or a group of archeologists with specialization and/or Ph.D)
- Cartographer / specialist (archeologist specialized in cartography/ topography/aero topography),
- Archeologist operator (coordinator/liable archeologist or archeologist specialized in manual excavations, or scout archeologist),
- Specialist for study findings (responsible for material analysis, for all material classes),
- Geophysics specialist (coordinator/responsible archeologist or archeologist specialized in geophysics),
- Botany specialist (coordinator/responsible archeologist or archeologist specialized for botany),
- Chemistry specialist (coordinator/responsible archeologist or archeologist specialized in chemistry),
- Geology specialist (coordinator/responsible archeologist or archeologist specialized in geology),
- Zoology specialist (coordinator/responsible archeologist or archeologist specialized in zoology),
- Anthropology specialist (coordinator/responsible archeologist or archeologist specialized in anthropology),
- Physics specialist (coordinator/ responsible archeologist or archeologist specialized in physics),
- Responsible area or sector (coordinator/responsible archeologist or responsible archeologist for area/sector),
- Chemistry laboratory (specialized laboratories for chemistry analysis),
- Physics laboratory (specialized laboratories for physics analysis),
- Geologic laboratory (specialized laboratories for geologic analysis),
- Museums (institution which protects artistic, culturological, historical or scientific artifacts and other objects and puts them in public view),
- Citizens (individuals or communities, last users of the archeology result).

Esposito et al. (2016) they say that attention put to a methodological approach emphasizes the need to improve activities for which the goal is to gain and protect data and information. This could help to guarantee correct management of archeological heritage, supported informative and communicative technologies, which could help ensure a number advantage in terms of acquisition, storaging, publication and communication in real time.

Reconstruction of an archeological heritage lifecycle enabled methods and tools for managing complexity during multidisciplinary archeology research. This standardization is reached thanks to the introduction of access to the modeling process through which the current workflow was defined and the foundation for future improvement and reengineering process was built (Esposito et al., 2016).

In this way identification of expensive methods and tools came to, which can automate part of the activity and digitize documents which are generated on the spot (Esposito et al., 2016). Because it identified processes and people, it was being worked on to increase and optimize communication between different actors (Esposito et al., 2016). With that goal, SNA enabled to clearly identify different roles and the weight of every actor inside the web (Esposito et al., 2016). This gave an insight and guidelines for giving suggestions about how activities which are being carried out could have a use out of improving communications between different actors (Esposito et al., 2016).

The use of social media for spreading cultural heritage is also shown in a study in northeastern Nigeria (Kamba & Buba, 2022). The study was undertaken in order to research the use of social media for spreading cultural heritage (Kamba & Buba, 2022).

The goals of the study were to:

- determine digital documented resources of cultural heritage available
- determine the degree of social media resources use in institutions of cultural heritage which are being researched
- assessment of impact for social media use for spreading cultural heritage on a sustainable level and
- identifying challenges for spreading cultural heritage using social media (Kamba & Buba, 2022).

The impact of the use of social media for spreading cultural heritage was discovered such as attracting tourists in institutions of cultural heritage, influence on cultural infusion. Setbacks were also identified during use of social media among which are threats of authenticity, authorization of digital collection, digital content and transparency and ethical practice of social media (Kamba & Buba, 2022).

In the next chart presented are social media platforms which institutions of cultural heritage use for the dissemination of resources of cultural heritage (Kamba & Buba, 2022).

Chart 2. Types of social media for dissemination of resources of cultural heritage

S/No	Utilization of Social Media	VHE	HE	LE	NA	Mean	Decision
25	Facebook	202	63	25	0	3.6106	Accepted
26	Flickr	36	93	96	65	2.3449	Not Significant
27	Twitter	195	84	11	0	3.6350	Accepted
28	Snapchat	160	114	26	0	3.5655	Accepted
29	Instagram	157	107	23	3	3.4413	Accepted
30	LinkedIn	119	143	28	0	3.3138	Accepted
31	YouTube	156	133	1	0	3.5345	Accepted
32	WordPress	67	86	84	53	2.5759	Accepted
33	Quora	0	71	81	138	1.7690	Rejected
34	Tumblr	0	17	142	131	1.6453	Rejected
35	Pinterest	105	96	89	0	3.0552	Accepted
36	Flipboard	0	15	184	89	1.7311	Rejected
	Valid N (listwise)	290				2.8518	

Source: Kamba & Buba (2022)

Chart 3. Challenges of using social media for spreading cultural heritage

S/No	Item	VHE	HE	LE	NA	Mean	Decision
50	Copy right management of cultural heritage	210	47	33	0	3.1725	Accepted
51	Ethical practice of social media	192	43	55	0	3.5024	Accepted
52	Fear of authority and authenticity of online content.	97	173	20	0	3.2655	Accepted
53	Fear of losing income through tourist/visitors	123	121	46	0	3.2655	Accepted
54	Inadequate funding	143	96	51	0	3.3172	Accepted
55	Inadequate infrastructure such as internet, networking facilities, and limited access to computer terminals	62	114	114	0	2.8207	Accepted
56	Incessant bureaucracy in cultural heritage institutions	77	119	94	0	2.9414	Accepted
57	Lack of awareness of dissemination practices of cultural heritage through social media	59	96	87	48	2.5724	Accepted
58	Lack of dedicated personnel for dissemination of cultural heritage using social media	79	108	103	0	2.9172	Accepted
59	Lack of IT literacy and skills,	63	91	104	32	2.6379	Accepted
60	Managers lack how to integrate social media in daily, tactical operation.	116	72	103	0	3.0551	Accepted
61	Threats of authenticity, authorization over digital collection, digital content and transparency	210	65	15	0	3.6724	Accepted
	Valid N (listwise)	290				3.0950	

Source: Kamba & Buba (2022)

In this chart it can be seen that the examinees stated the use of Facebook, Twitter and Snapchat were most used in the spreading of cultural heritage resources. Then it was shown that Instagram, LinkedIn, YouTube, WordPress and Pinterest were also used very well (Kamba & Buba, 2022). In the next chart the analysis of problems that affect the efficacy of managing social media in institutions of cultural heritage can be seen.

The analysis showed that the examinees as some of their challenges rated the issue of managing the copyright of cultural heritage, and the ethical practice of social media. Then the fear of authority and authenticity of online content, fear of income loss from tourists/visitors, inadequate financing, inadequate infrastructure such as the internet, networking and limited access to computer terminals, the constant bureaucracy in institutions of cultural heritage, lack of consciousness about the practice of spreading cultural heritage through social media and etc was shown (Kamba & Buba, 2022).

Consequently, the study concluded that in spite of different challenges institutions of cultural heritage that are being researched face, there is a positive correlation between the use of social media for spreading cultural heritage and sustainable development (Kamba & Buba, 2022).

Conclusion

According to Fatorić & Daly (2023, p.6) the key passing point for the transformation, admits that managing cultural heritage can no longer be isolated from other social challenges, but rather the vision should be accepted in which the cultural heritage vector for positive transformation inside society and for the good of future generations. The fund for research of global challenges (GCRF) called upon researches to give suggestions for solving innovative approaches for resolving problems of the effect of natural disasters and climate change to material and non-material cultural heritage in countries with low and medium income (Giliberto et al., 2022).

The report answers questions about how climate change affects cultural heritage and what can be done in order to more inclusively answer to the effects of climate change and natural disasters (Giliberto et al., 2022). Also the report gives guidelines to future studies about the reaction about emergency situations caused by catastrophes, losses and damages, as well as adapting to predictable global changes of the environment (Giliberto et al., 2022).

Climate change represents a key factor which endangers cultural historical heritage and which affects and contributes to faster displacement of communities, thus

also disturbing the ability of countries to ensure conditions that are necessary for human safety (IPCC, 2022). The key challenge is to ensure an all-inclusive approach to combining results from different methods for the support of concrete applications and informing about bringing decisions (Ginzarly et al. 2018, 20).

References

- 1. Akhmedenov, K., & Sdykov, M. (2021). Historical and cultural heritage of the Atyrau region as tourism development resource. IOP Conference Series: Earth and Environmental Science, 817.012001.
- 2. Bernardini, W., (2007). Jeddito yellow ware and Hopi social networks. *Kiva*, 72 (3), 295-328.
- 3. Biznis plan za rehabilitaciju nepokretnih kulturnih dobara. (2014). Priručnik za izradu i implementaciju. Republički zavod za zaštitu spomenika kulture. Dostupno na: https://vdocuments.pub/biznis-plan-za-rehabilitaciju-nepokretnih-kulturnih-dobara.html? (Pristupljeno: 11.08.2023)
- 4. Brown G, Fagerholm N (2015) Empirical PPGIS/PGIS mapping of ecosystem services: A review and evaluation. *Ecosystem Services* 13: 119-133.
- 5. Carmichael, B., Wilson, G., Namarnyilk, I., Nadji, S., Cahill, J., Brockwell, S., Webb, B., Bird, D., & Daly, C. (2020). A methodology for theassessment of climate change adaptation options for cultural heritage sites. Climate, 8(8), 88.
- 6. Ding, L. Ball, A. Matthews, J. McMahon, C. & Patel, M., (2007). Product Representation in Lightweight Formats for Product Lifecycle Management (PLM). The Fourth International Conference on Digital Enterprise Technology, Bath, UK 19-21 September.
- 7. Dolores, L., Macchiaroli, M., & de Mare, G., (2020). A Dynamic Model for the Financial Sustainability of the Restoration Sponsorship. *Sustainability*, 12(4), 1694.
- 8. Emmanuel, G., & Sundaram, M., (2020). Heritage Management in Historical Contexts: A Value Framework using Local People's Experiential Knowledge on Cultural Heritage. *International Journal on Advanced Science Engineering and Information Technology*. 29, 2390-2402.
- 9. Eppich, R., & Grinda, J., (2019). Sustainable financial management of tangible cultural heritage sites. *Journal of Cultural Heritage Management and Sustainable Development*, 9(3).
- 10. Esposito, M., Mangialardi, G., Schina, L., Fortunato, L., Monastero, A., & Corallo, A., (2016). An integrated and networked approach for the cultural heritage lifecycle management. *ENCATC Journal of Cultural Management & Policy*, 6, 80-95.
- 11. Fatorić, S., & Daly, C. (2023). Towards a climate-smart cultural heritage management. Wiley Interdisciplinary Reviews: Climate Change.

- 12. Giliberto, F., Jackson, R., Devilat, L.B., Elkadi, H., Donovan, K., Osman, A., Forrest, A., Crang, M., Hamadziripi, N., Heritage, P., Megarry, W., Pirgova-Morgan, L., Abdelmonem, M., Lanuza, F., Desai, J., Mane, M., Pithawalla, Z., Jigyasu, R., Sen, S., Day, J., (2022). Cultural heritage in the context of disasters and climate change: Insights from the DCMS-AHRC Cultural Heritage and Climate Change Cohort.
- 13. Ginzarly, M., Pereira Roders, A., & Teller, Ja. (2018). Mapping historic urban landscape values through social media. *Journal of Cultural Heritage*, 36.
- 14. Global Challenges Research Fund (GCRF). Available at: https://www.ukri.org/what-we-do/our-main-funds-and-areas-of-support/browse-our-areas-of-investment-and-support/global-challenges-research-fund/ (Accessed date. August 12, 2023)
- 15. Graham, S. (2006) Networks, agent-based models and the Antonine itineraries: implications for Roman archaeology. Journal of Mediterranean Archaeology, 19 (1), 45-64.
- Iceland C., Hanson C., & Lewis C., (2008). IDENTIFYING IMPORTANT ECOSYSTEMGOODS & SERVICES IN PUGET SOUND Draft Summary of Interviews and Research for the Puget Sound Partnership Prepared by. World Resources Institute) Craig Hanson, Charles Iceland.
- 17. IPCC. (2022). Climate change 2022: Impacts, adaptation and vulnerability. In H.-O. Pörtner, D. C. Roberts, M. Tignor, E. S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, & B. Rama (Eds.) Contribution of working group II tothe sixth assessment report of the intergovernmental panel on climate change. Cambridge University Press.
- 18. Kamba, M., & Buba, A. (2022). the use of social media for the dissemination of cultural heritage in north-east Nigeria.
- 19. Kilonzi, F., & Ota, T. (2019). Influence of cultural contexts on the appreciation of different cultural ecosystem services based on social network analysis. One Ecosystem. 4.
- 20. Kreitler, J, Papenfus, M., Byrd, K., Labiosa, W., (2013) Interacting Coastal Based EcosystemServices: Recreation and Water Quality in Puget Sound, WA. PLoS ONE 8 (2): e56670.
- 21. Kvartalnov, V.A. (2000). Tourism: A Textbook (Moscow: Finance and Statistics), p 320.
- 22. MEA. (2005) Environmental Degradation and Human Well-Being: Report of the Millennium Ecosystem Assessment. Population and Development Review 31(2), 389-398. https://doi.org/10.1111/j.1728-4457.2005.00073.x.
- 23. Mills, B. J., Roberts, J. M. J.R., Clark, J. J., Haas, W. R. JR. & Peeples, M. A., (2012) The dynamics of social networks in the Late Prehispanic U.S. southwest. In: Knappett, K. (ed.) Network analysis in archaeology: New approaches to regional interaction (pp. 181-202). Oxford: Oxford University Press.
- 24. Munson, J. L. & MACRI, M. J., (2009) Sociopolitical network interactions: a case study of the Classic Maya, *Journal of Anthropological Archaeology*, 28(4), 424-438.
- 25. Nasrolahi, A. (2023). Local People's Participation in Cultural Heritage Conservation and Management. https://doi.org/10.4018/978-1-6684-8253-7.ch022

- 26. Pearson, J., Jackson, G., & McNamara, K. E., (2021). Climate-driven losses to indigenous and local knowledge and cultural heritage. *Anthropocene Review*, 205301962110054.
- 27. Polovynchak, Y., Bondarenko, V., Matviichuk, L., & Strunhar, V., (2022). Legal Resources of Historical and Cultural Heritage: Presentation in Library Collections and Their Popularization. University Library at a New Stage of Social Communications Development. Conference Proceedings.
- 28. Poštin, J., Ćilerdžić, V., Rusić, A., & Stojković, S., (2021). Etika i globalizacija u bankarstvu. Zbornik radova *Mediji i ekonomija,7*. https://doi.org/10.7251/BLCZR0421181P
- 29. Poštin, J., Konjikusic, M., Rusic, A., & Stojkovic, S., (2020). Uloga i znacaj socijalnog preduzetnistva. Zbornik radova *Mediji i ekonomija, 6*. https://doi.org/10.7251/BLC-ZR0120087P
- 30. Privitera, C. R. M., (2011). La comunicazione e l'interscambio dei dati archeologici attraverso il web. Seconda Università degli Studi di Napoli, Facoltà di Lettere e Filosofia, Corso di Laurea magistrale in archeologia e storia dell'arte.
- 31. Shcherbina, E., & Belal, A., (2019). The value of historical and cultural heritage in the reconstruction and restoration of cities. Vestnik MGSU, 14. 417-426. https://doi.org/10.22227/1997-0935.2019.4.417-426
- 32. Shepherd, N., Cohen, J. B., Carmen, W., Chundu, M., Ernsten, C., Guevara, O., Haas, F., Hussain, S. T., Riede, F., Siders, A. R., Singh, C., Sithole, P., & Troi, A., (2022). ICSM CHC white paper III: The role of cultural and natural heritage for climate action: Contribution of solu-tions group III to the international Co-sponsored meeting on culture, heritage and climate change. ICOMOS & ICSM CHC.
- 33. Szromek, A., (2022). Value Propositions in Heritage Tourism Site Business Models in the Context of Open Innovation Knowledge Transfer. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(3), 161. https://doi.org/10.3390/joitmc8030161
- 34. World Heritage Earthen Architecture Programme. (WHEAP). (2009-2017). Project Document. Educational, Scientific and Cultural Organization. United Nations.