Digitization of Cultural Heritage of Burgas Region, Bulgaria - Initiatives and Outcomes

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Abstract. The purpose of this article is to present some of the most significant initiatives related to the digitalization of tangible and intangible cultural heritage of the Burgas region, Bulgaria. The described achievements and outcomes related to the digital promotion, presentation, and preservation of cultural heritage of the region in global and long-term perspectives are a result of the fruitful cooperation at the national and international level of experts in digitization from research institutes and organisations with faculty staff from higher education institutions and professionals from cultural and creative industry domain from Bulgaria and abroad.

Keywords: Digitalization, Cultural Heritage, Intangible Cultural Heritage, Virtual Exhibition, Digital Collection.

1   Introduction

New technologies transform dramatically our lifestyles and society. In this changing landscape at the European level, there is a broad consensus about the important role of culture as an ideal means of communicating across language barriers, empowering people, and facilitating social cohesion (European Commission, 2018).

The preservation and development of the cultural diversity of each country and region is a fundamental principle of the European Union's cultural policy, and the creation of a "common" European identity is a strategic goal. The digitalization of the individual cultural heritage is the first and most important step - the sharing and active inclusion of local and national cultural heritage in the virtual culture of Europe.

The next sections of the paper describe several successful initiatives aiming to contribute to the inclusion of the cultural heritage of the Burgas region, Bulgaria in the global cultural information space.

2   Virtual Exhibition of the Orthodox Icons Collection of Regional Historical Museum – Burgas

The creation of digital museum collections with exhibits that are correctly displayed, annotated, and indexed is crucial for ensuring the high level of accessibility of cultural and historical heritage to a wide variety of users - organisations, experts, researchers, and individuals with varied interests.

As result of the project No BG161P003-1.2.02-0022-C0001 "Creation of a new office for the transfer of innovative technologies in enterprises from the Southeast region," funded by the operational program "Development of the competitiveness of the Bulgarian economy" 2007-2013 was developed virtual exposition of icons from the fund of Regional Historical Museum (RHM)-Burgas. Under this project the technological solution, methodology and the domain ontology, applying conceptualization approaches of the CIDOC CRM, for the East Christian Iconographical Art developed by the Institute of Mathematics and Informatics at the Bulgarian Academy of Sciences (IMI—BAS) were adjusted and adapted to the concrete needs and requirements of RHM – Burgas. A digital library "Virtual Collection of Icons" was developed in close collaboration between professionals from IMI-BAS, Burgas Free University (BFU) and RHM-Burgas. Data and document management, information and search systems, web technologies, semantic technologies, and library management (Paneva-Marinova, Goynov, & Luchev, 2017) as well as multimedia databases development, digital objects cataloguing and management of museum collections are all used in the construction of the digital RHM–Burgas exhibition (Zhelev, 2018). The developed digital library (http://www.burgasmuseums.bg/bidl/) significantly improved the quality of the access to the museum funds. Digitization of unique iconographic collection of RHM-Burgas, which is one of the richest in the country, allows scientists, researchers and the general public to access iconographic artifacts of various origins and types, while also enabling useful facilities and searching options and enhanced traceability, analysis and study of the history and culture of Burgas region (Stewart, et al., 2017).

3   Research and Conservation of Orchid Species that Live in the Standzha Mountain through Digitization

In 2017 was implemented project "ORCHIS - Research, Conservation and Habitats of Orchids in Strandzha", funded under the Programme of the Europe - a Union for Cross-Border Cooperation INTERREG-IPA Bulgaria-Turkey 2014-2020 (ORCHIS, n.d.) . The main project objective was to improve the capacity for nature conservation, sustainable use and management of common natural resources through cross-border cooperation initiatives. Professionals from BFU and IMI-BAS participated in this project as experts who contributed with their expertise in the development of the specialized software ORCHIS. The software offers interface and data in Bulgarian, Turkish and English and provides an option for submitting sighting and reports of orchids in Strandzha and their condition which to be used by specialists and foresters. The software could be used on windows-based tablets or desktop computers taking advantage of inbuilt or

added GPS devices. The supported network of users can share data via an automatically updated database (Stewart, Zhelev, & Monova-Zheleva, 2018). The software is distributed among biologists and foresters who can use its full functionality. General public can see the locations of the recorded populations of certain orchid species on the website. All digitized objects could be seen following the developed index as is shown on the example https://orchis.onenat.org/species#A.

4   Digital Presentation and Preservation of Cultural Heritage - Project DigiCult

In 2019 in line with the Digital Agenda of the Europe 2020 Strategy was started international project DigiCult 2019-1-BG01-KA202-062231, funded by the Erasmus+ Programme by the Bulgarian National Agency (DigiCult, n.d.). In the framework of this initiative and based on a conducted survey among the experts and professionals from cultural and creative industries as well as from research and educational organisations in Bulgaria, Greece, Italy and Latvia (Monova-Zheleva, Zhelev, & Nikolova, 2020) was developed Framework for common standards and models for digitization, presentation and preservation of intangible cultural heritage (ICH). The Framework encompasses the developed base ontology, flexible data model for digitization of cultural heritage objects (tangible and intangible) and practical guidelines on how the model to be used for implementation of cultural objects' digitization (https://www.digicultproject.eu/en/#IntellectualOutputs). DigiCult data model is based on the Europeana DM recommendations and ensures possibility for its flexible adjustment to the nationally adopted regulations and requirements with option for extension if needed new types of collections and classes to be defined (Zhelev, Stewart, & Monova-Zheleva, 2021). Another output of this initiative is the developed detailed Guide on how the developed model and the proposed methodology and standards to be used by the professionals from cultural and creative industries as well as from the students who are trained in the field of presentation, preservation, and dissemination of ICH – the main DigiCult target groups. Finally, in the project framework was developed a training course „Digitization, presentation and preservation of intangible cultural heritage" in accordance with the EQF level 5 enabling further learning and progression to and within higher education. In the implemented under the project online training more than 350 current and future professionals in the cultural and creative industries from all partner countries took part and gained competence in ICH digitization (Zhelev, Monova-Zheleva, & Stewart, 2021). The trained professionals from RHM-Burgas digitized some of the customs and rituals from the region and these objects are already part of the online collections of the museum (https://www.burgasmuseums.bg/en/enc/customs-rituals-3).

5   Ongoing Initiatives and Further Steps

EuRiCa 2020-1-BG01-KA202-079046 is an ongoing project that strives to contribute and foster the preservation of the ritual cuisine, its ethnocultural traits, as well as the

folklore and traditions connected with it via the development of a methodology for digitization and creation of digital representations of ritual recipes which to be integrated into the virtual cultural space and thus to be accessible globally so to create a link of continuity between past and present that can be transmitted to future generations. In the initiative are involved organisations from Bulgaria, Italy, Latvia and Portugal (EURICA, n.d.). In the EURICA framework the developed DigiCult data model was adapted based on the conducted research among the specialists in ethnography, professionals from the cultural domain (Nikolova, Zhelev, & Monova-Zheleva, 2021) so the ritual cuisine and the related rituals and practices to be preserved as a manifestation of heritage and folklore by making it easy acceptable and usable thanks to digitization of traditional recipes from different parts of Europe. To facilitate the process of digitization was developed interactive tool and templates. A multilingual online training course, addressed to VET and C-VET trainees, in the development and publishing of ritual cuisine digital representations based on the proposed model and methodological framework is in the process of finalization.

It is worth to be mentioned several other ongoing initiatives for digitization of the Burgas region cultural heritage. In 2020 started the process of digitization of the Regional Library – Burgas archives. Currently the entire library's fund of periodical press (newspapers and magazines) until 1944 (6000 units) and the rich archive of posters (over 900 units) are digitized and annotated using the adapted version of the DigiCult model. Next steps in this direction are related to the development of a web-based software environment for digital collections management that allows intelligent content curation designed for the needs of the Regional Library – Burgas as well as the development of digital collections from the already available digitized objects and those which will be digitized in the future such as library's funds of postcards (over 500 units), paintings (420 units), music records (300 units), as well as part of the book collection and collection of maps. With support of the Burgas municipality is developed a virtual tour (https://virtualwalk.mal-burgas.com/) presenting the library facilities. Some of the next initiatives are projected and closely related to the usage of 3D modelling, 3D simulation, cultural objects' animation, augmented reality, holograms and so on for the development of digital expositions of cultural and historical artifacts. Currently, some of the exhibits from the digital collections of coins and jewellery from the funds of RHM-Burgas, created in the long-term cooperation of the museum, BFU and IMI-BAS, can now be seen in a prototype of a virtual museum developed by IMI-BAS experts. The digital expositions developed by using the most advanced technologies could be seen visiting the exposition halls https://demo.bg73.net/3d/museum.html?room=a6.

References

DigiCult. (n.d.). Retrieved from Digital presentation and preservation of intangible cultural heritage: https://www.digicultproject.eu/en/

EURICA. (n.d.). Retrieved from Europe Ritual Cuisine – Digital Presentation and Preservation: https://eurica.eu/#

European Commission. (2018). *A New European Agenda for Culture, COM(2018) 267 final*. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52018DC0267&from=EN#footnote5

Monova-Zheleva, M., Zhelev, Y., & Nikolova, E. (2020). Intangible Cultural Heritage Presentation and Preservation - Callenges and Opportunities for Museum Specialists. *Digital Presentation and Preservation of Cultural and Scientific Heritage* (pp. 233-240). IMI-BAS.

Nikolova, E., Zhelev, Y., & Monova-Zheleva, M. (2021). Cultural Heritage and Interoperability in the Context of Competencies of the Culture Industry Human Resources. *Digital Presentation and Preservation of Cultural and Scientific Heritage* (pp. 151-158). IMI-BAS.

ORCHIS. (n.d.). Retrieved from Research, Conservation and Habitats of Orchids in Strandzha Project: http://www.orchis.onenat.org

Paneva-Marinova, D., Goynov, M., & Luchev, D. (2017). *Multimedia digital library: constructive block in ecosystems for digital cultural assests. Basic functionality and services.* Berlin: LAP LAMBERT.

Stewart, R., Monova-Zheleva, M., Zhelev, Y., Pavlova, L., Luchev, D., Paneva-Marinova, D., & Pavlov, R. (2017). The Orthodox icons collection of the Regional Historical Museum—Burgas: A digital library for iconographic objects. *Digital Presentation and Preservation of Cultural and Scientific Heritage* (pp. 157–172). Veliko Tarnovo: Institute of Mathematics and Informatics, Bulgarian Academy of Sciences.

Stewart, R., Zhelev, Y., & Monova-Zheleva, M. (2018). ORCHIS - technology in help of botanists and foresters on both sides of the border. *Digital Presentation and Preservation of Cultural and Scientific Heritage* (pp. 225-240). IMI-BAS.

Zhelev, Y. (2018). *Multimedia Libraries: Standards, Methods and Models.* InformaPrint, ISBN978-619*7252-41-5.

Zhelev, Y., Monova-Zheleva, M., & Stewart, R. (2021). The Digital Future of Intangible Cultural Heritage – Challenges and Initiatives. *Digital Presentation and Preservation of Cultural and Scientific Heritage* (pp. 41-50). IMI-BAS.

Zhelev, Y., Stewart, R., & Monova-Zheleva, M. (2021). Development of Digital Collections of Intangible Cultural Heritage Objects - Base Ontology. *Digital Presentation and Preservation of Cultural and Scientific Heritage* (pp. 51-56). IMI-BAS.