

University Libraries in the Digital Ecosystem of Cultural Memory and Strategies for Digitization, Access, and Knowledge Sharing

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Abstract—Preserving and providing access to documentary cultural heritage poses a significant challenge in the context of today's digital transformation. The development of information technologies creates new opportunities for the digitization, preservation, and dissemination of archival and library resources, as well as for expanding access to knowledge. University libraries play a vital role in building the digital ecosystem of cultural memory by supporting the processes of digitization, management, and provision of access to information resources. By implementing modern technologies and developing institutional collaboration, they contribute to the more effective preservation and promotion of documentary heritage. This publication explores opportunities for developing strategies for the digitization and management of information resources in university libraries, as well as the importance of cooperation among various cultural memory institutions. The focus is on the role of university libraries as intermediaries in the processes of knowledge exchange and ensuring broader access to cultural heritage in a digital environment.

Keywords— *cultural memory, digitization, university libraries, documentary cultural heritage, information resources.*

I. INTRODUCTION

Documentary cultural heritage is a key element of a country's identity and is essential to its development. By utilizing the latest technologies, we can ensure that it is preserved for future generations and remains accessible to people at any time and from any location [1], [2], [3].

The preservation and protection of documentary cultural heritage is a challenge not only for institutions but also for library staff, as they bear the responsibility for its preservation. This study focuses on the nature,

applicability, and significance of preserving community center collections, as well as new opportunities for inter-institutional cooperation, research, and engaging local communities in cultural sustainability processes by incorporating digital technologies as a tool for preserving and accessing documentary heritage, in accordance with established best practices and professional standards [4], [5].

A good opportunity for the preservation of library collections is the creation of digital collections that are available to users at any time, without restrictions [2], [3], [6]. The benefits of digitization include the possibility of broader and easier access to documents and the preservation of original editions. This is a way to properly assess the value and significance of the collections held [3], [5], [7].

Digitizing the collections will preserve them over time, and regardless of the extent of their deterioration, their digital images will always be available to future generations. In addition to the benefits of preservation and conservation, digitization also benefits users by providing them with convenient and fast access to information [3], [8].

Despite the growing number of digitization initiatives, the development of models that link the capacity of university libraries with the needs of smaller memory institutions at the regional level remains relatively limited in the scientific literature. It is precisely here that the need for networked solutions becomes apparent, in which the university library functions not only as an independent service provider but also as a coordinating center for digitization, methodological, and training activities. This publication aims to argue for the applicability of such a model and to outline its main functional components in an

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environment where the sustainability of digital resources depends simultaneously on technology, organizational policies, and human capacity [9], [10], [11].

In this regard, the study is guided by three main questions: what are the institutional and technological prerequisites for building sustainable digital services; how can university libraries support community and regional collections, and which mechanisms for describing, sharing, and visualizing digital objects are most suitable for creating a shared access infrastructure? Formulating these questions allows the topic to be viewed not merely as a digitization task, but as a challenge concerning the management of cultural memory, information connectivity, and the public visibility of local cultural resources [1], [2], [3].

II. RESEARCH METHODOLOGY

A. Research Framework and Analysis Criteria

The study is conceptual and analytical in nature and employs a qualitative approach based on a comparative review of international strategic documents, publications in the field of digital libraries, and research dedicated to the digital preservation of cultural heritage. The analysis includes documents from UNESCO and IFLA, publications addressing digitization as part of cultural heritage management, as well as European frameworks related to integrated platforms and shared services in the sector [1], [2], [3], [12], [10], [11].

For the purposes of this study, five analytical criteria have been identified:

- a) institutional organization and partnership;
- b) selection and prioritization of items for digitization;
- c) description, metadata, and interoperability;
- d) long-term preservation and access;
- e) human resource development and service sustainability.

Through this framework, the proposed model for a digitization hub is viewed as a managerial and technological construct, rather than merely a technical process of scanning and publishing files. Such an analytical approach allows for an assessment of the relationships between the quality of digital resources, their reusability, and their actual integration into educational, scientific, and public practice [9], [10], [11].

The intensive digital transformation, the sustainable preservation, and access to documentary heritage are becoming increasingly important, both for the scientific community and for the general public. In this context, libraries—and in particular university and community libraries—are establishing themselves as key institutions in the process of preserving, digitizing, and promoting documentary heritage [3], [9].

Issues related to the preservation of archival collections are of particular importance for small communities, where

valuable but poorly accessible or at-risk documents are stored in community center libraries [5], [12].

Community centers are a unique institution within the Bulgarian cultural system. They play a vital role in preserving and promoting local culture, traditions, and historical memory. Their collections contain valuable documents related to regional history, cultural events, and community life [5].

The digitization of documentary cultural heritage is a strategic task for modern libraries and cultural institutions. However, serious difficulties are encountered in implementing such initiatives due to limited resources and a lack of technical infrastructure [8], [12].

The main problems include limited financial resources, a lack of technical infrastructure, and insufficiently trained staff. As a result, a significant portion of the local documentary cultural heritage remains inaccessible to the general public and to scientific research [8], [12].

In this context, collaboration between university libraries and local cultural institutions can be viewed as an effective model for developing digital services. University libraries possess technological resources, expertise, and organizational capacity that can be leveraged to support smaller institutions. For these reasons, the creation of collaborative networks between different institutions is viewed as an effective approach for developing digital initiatives in the cultural sector [10], [11].

The proposed model for a digitization hub provides an opportunity for effective collaboration between university libraries and community centers. Through centralized infrastructure and resource sharing, the digitization process can be improved and broader access to documentary cultural heritage can be ensured. The digitized resources will be consolidated into a platform to facilitate the sharing of and access to information among participating institutions [10], [11].

In all programs for the preservation of and access to the cultural heritage of libraries, a role is assigned to educational, cultural, and social institutions that provide free and open access to information. All these changes require continuous maintenance of specific software resources and a secure technical infrastructure, as well as ongoing training for staff [12], [11], [13].

Today, the library has established itself not only as a repository of knowledge, but also as a facilitator in the development of an informed, critically thinking, and culturally aware society. The university library is a cultural, educational, social, and information hub capable of responding flexibly and appropriately to the challenges of the modern era. This transformation is of essential importance for contemporary higher education institutions, establishing the university library as an indispensable resource and partner in building a sustainable and innovative academic community [9], [14].

III. RESULTS

A. Interoperability and Metadata

One of the key findings of the analysis is that the proposed model for a digitization hub must be built on a common minimum set of requirements for metadata, file formats, and information exchange procedures. Dublin Core can be used for basic bibliographic and descriptive representation, as it provides a widely recognized set of elements for describing digital resources and facilitates comparability between different systems [15]. When the hub aims to exchange metadata between institutional repositories, library catalogs, and external aggregators, a suitable mechanism is OAI-PMH, which allows for the retrieval and reuse of structured descriptions from various sources [16]. For the online presentation of complex digital objects such as manuscripts, periodicals, albums, and multi-page documents, IIIF provides the necessary framework for visualization, navigation, and annotation, without requiring each institution to build its own completely closed-off toolkit [17].

It follows, then, that the quality of digitization is not determined solely by image resolution, but by the system's overall ability to ensure discoverability, link descriptive and visual data, and enable the resource to be used across multiple platforms. It is precisely at this level that the university library can act as a methodological coordinator, establishing minimum requirements for metadata, file formats, identifiers, naming conventions, and quality control procedures [9], [10], [15], [16], [17].

B. Model for Institutional Partnership

The results of the comparative analysis show that the phased model of cooperation is the most promising. In the first phase, partner institutions identify and prioritize locally significant documents. In the second stage, the university library provides digitization methodologies, training, technical consultations, and basic storage infrastructure. In the third stage, centralized cataloging and publication in a shared access environment are implemented, and in the fourth stage, integration with national and international platforms to increase the resource's visibility. This model reduces inequalities between institutions with varying capacities while simultaneously creating conditions for the accumulation of shared expertise [8], [10], [11].

In such an architecture, community libraries retain their role as custodians of local memory and providers of primary materials, while university libraries assume more pronounced coordinating and scientific-information functions. This division of roles is important because it prevents both over-centralization and the fragmented development of separate, incompatible initiatives. In practice, the digitization hub should combine technical infrastructure, editorial policy, copyright rules, archiving procedures, and channels for promoting digital collections [2], [12], [11], [18].

C. Access, Reuse, and Public Value

Ensuring access should not be limited solely to the online publication of images or PDF files. European best practices show that the real public value of digital collections increases when they are accompanied by high-quality metadata, clear licensing terms, and the ability to cite and incorporate them into educational, research, and creative uses [11], [18]. In this sense, access is a multifaceted process that encompasses discoverability, understandability, reusability, and thematic linking to other resources.

For university libraries, this means developing services that go beyond traditional bibliographic reference: creating thematic digital collections, curated virtual exhibitions, information literacy training resources, and research services for working with digitized sources. When local cultural resources are presented in such an expanded environment, they transform from obscure archival items into active objects of research, teaching, and cultural communication. In this way, digitization supports not only the preservation but also the revitalization of cultural memory in the contemporary digital environment [3], [9], [14].

D. Sustainability and Human Resource Capacity

A key finding of the analysis is that the sustainability of such initiatives depends equally on technology and human resources. The availability of scanners, a server environment, and an access platform is a necessary but insufficient condition if clear workflows, responsibilities, and competencies are lacking. Training is needed in digitization, metadata, copyright, file management, quality control, and the basic principles of digital preservation. It is precisely here that university libraries can serve as training centers for regional partners and create sustainable communities of practice [8], [8], [10].

Sustainability also requires a clear policy on technological upgrades, backups, long-term storage formats, and periodic verification of available digital resources. Otherwise, the risk shifts from physical damage to the original to digital obsolescence, file fragmentation, and loss of descriptive information. Therefore, the digital hub should be conceived as an ongoing organizational process rather than a one-time project dependent solely on short-term funding [1], [12], [11].

E. Stages of Digital Curation

The practical implementation of the proposed model requires a clearly defined workflow that begins with the selection and assessment of the physical condition of the documents, proceeds through digital capture, the creation of master files, the production of derivative copies for access, metadata description, quality control, and publication in a search and visualization environment. The inclusion of standardized descriptive elements and clearly defined stages reduces the risk of inconsistent processing and facilitates the subsequent sharing of resources between institutions [12], [15], [17]. Such a workflow is particularly important in distributed partner networks, where digital objects are created in different locations but must be

presented in a consistent manner and with predictable quality.

It is particularly important to distinguish between files intended for long-term preservation and those intended for public access. The former should be designed to maintain the highest possible quality and ensure the possibility of future migration, while the latter must provide fast loading, convenient viewing, and controlled use in a web environment. When this distinction is not taken into account, the result is often either excessively large public collections or a lack of sufficiently reliable source files for future reuse and long-term preservation. This is why quality control must be conceived as an ongoing function of the hub, rather than as a final, one-time check [12], [11], [18].

F. Policies, Rights, and Ethical Considerations

The digitization of documentary cultural heritage also involves a number of decisions regarding copyright status, the provenance of materials, the degree of public access, and permissible forms of reuse. Not all items can or should be published in the same way. Some documents may contain sensitive data, restrictions arising from third-party rights, or special social and local significance that requires more careful curation. Therefore, an effective digitization hub must have transparent rules regarding rights, licenses, and access levels so as to balance openness with institutional accountability [1], [2], [11], [18].

Aligning domestic policies with European frameworks for quality and reuse also has practical significance. It facilitates not only publication within broader ecosystems but also builds trust in digital collections as a reliable scientific and educational resource. When sufficient descriptive data, clear rights, and a stable access address are added to each digital object, the likelihood that it will be cited, used in teaching, or included in broader thematic collections increases significantly. In this way, access and rights policies become an essential element of the visibility and lifecycle of digital heritage [10], [11], [18].

IV. CONCLUSION

The development of such network models can contribute to the creation of sustainable digital ecosystems that support scientific research, education, and cultural development.

Access to information plays a vital role in today's information-based society. Therefore, university libraries must ensure both every user's right to equal access to information and the necessary means for its effective realization, while encouraging the search for and use of information. University libraries are among the most important venues for accessing and sharing information. To fulfill their mission effectively and serve their users well, they must have qualified staff, a solid technical infrastructure, and support from the institutions themselves. Only then will they be able to adequately meet the needs of their users and develop the services they offer.

In this sense, the proposed model makes a twofold contribution: first, it formulates a practical framework for

cooperation between university libraries and community centers; second, it emphasizes interoperability, metadata quality, and access policies as essential dimensions of modern digitization. It is particularly important that such a framework can be adapted to the scale and resources of the participating institutions without losing the possibility of subsequent integration with broader European ecosystems.

A limitation of this study is its conceptual nature—it does not include empirical testing of the model within a specific institutional network. This opens up prospects for future work focused on piloting the proposed framework, developing indicators for quality assessment, and tracking the impact of digital collections on scholarly use, educational practices, and the public visibility of local cultural heritage. Regardless, the analysis shows that university libraries have the potential to be not only custodians of knowledge but also active architects of a connected and shared digital cultural memory.

From a practical standpoint, the implementation of such a model can be carried out in stages: first by establishing a minimal set of standards for metadata description and exchange, then by creating a common access portal, and finally by linking local digital collections to national and international aggregators. This phased approach allows institutions to increase their capacity without disrupting their current operations and without making the entire sustainability of the initiative dependent on a one-time project resource. This is precisely why the combination of phased implementation, interoperability, and clear digital curation policies appears most suitable for university libraries that wish to take on a coordinating role in the preservation and promotion of local cultural heritage.

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