Public Library: Aggregator of Cultural Assets for Sustainability Through Shared Knowledge and Co-creation

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Abstract
This paper aims to extrapolate the approach initiated by Paul P. Maglio regarding the service systems theory seen as "a configuration of people, technologies and other resources that interact with other service systems to create mutual value", through a customisation and theoretical-operational localisation in the specific field of public libraries. The concept of resilient communities denotes a complex theme with multiple social, economic, political and environmental implications, which today dominates the stage of debates on the preventive and responsible approach to the future's challenges. From the point of view of public libraries, the concept is even more diffuse, integrating a multitude of perspectives regarding the nature and complexity of the challenges faced by the librarian ecosystem in order to remain relevant in terms of the services offered to their users. It also reflects the adaptive response of knowledge communities and their desirable response regarding flexibility, sustainability and the ability to assimilate change and enable progress. Starting from a recent use case from Romania, developed in the context of the Horizon 2021-2027 project SHIFT: MetamorphoSis of cultural Heritage Into augmented hypermedia assets For enhanced accessibiliTy and inclusion, the author proposes a conceptual article about the abstracting process of the service system, to exemplify how in which cultural value can be created for the community through the co-participation of the final beneficiaries, bringing together in this sense examples from the real work environment of public libraries network in Romania, but also scientific foundations validated by the SHIFT European project consortium.

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Introduction

Public libraries play a major role in supporting resilient communities and in creating cultural value for the community through co-creation and sharing of knowledge (Stenström et al., 2019; Summers & Buchanan, 2018; Edwards, 2018). They can contribute to sustainable development by providing information and facilitating democratic access to knowledge, as well as by promoting cultural participation, especially in disadvantaged communities (Summers & Buchanan, 2018; Edwards, 2018).

Through their encyclopedic profile, public libraries facilitate the interaction of different audiences with technology and can provide valuable information about how educational materials and technologies influence people's behavior and experiences. In this regard, libraries can be considered privileged spaces for interdisciplinary research, with direct benefits in increasing the accessibility of knowledge among different categories of library service users.

Librarians can also play an active role in knowledge creation and sharing, both through involvement in research activities (Wilkes & Miodownik, 2018; Rahmah & Marlini, 2020), and through the mediation of various co-creation and innovation initiatives carried out in the library ecosystem. Cultural sustainability has become a real priority in recent years, with the 2030 Agenda reserving a central place for sustainable development, and the Council of Europe Recommendation 2023 granting public libraries an important mission in terms of fulfilling the SDGs and encouraging socio-cultural vitality on a responsible and ethical basis, with the support of emerging technologies.

Effective management of library assets is essential to ensure the sustainability of public libraries. They can play an important role in the preservation and dissemination of intangible cultural heritage, in particular through the use of information and communication technologies. They can also contribute to increasing social inclusion, making the heritage of collective knowledge accessible and meeting the specific cultural consumption needs of communities.

Sharing resources and knowledge through large consortia and different online platforms has the potential to increase the efficiency and relevance of public libraries (Odede, 2020; Jun, 2022). In addition, public libraries have the capacity to become key actors in promoting cultural diversity and intercultural dialogue, as well as in cultivating the skills and knowledge necessary to meet the needs of communities in the digital age (Bashir, 2020; Kim & Copeland, 2021). Through an appropriate pro-resilience approach, public libraries can transform themselves into true "vital centers" that contribute to the creation of cultural value through co-creation and sharing of knowledge, the preservation of cultural heritage, social inclusion and sustainable development.

Professionals in the Romanian public library system have understood in recent years the importance of partnerships, which contribute to better resource management and have a significant impact on communities. These partnerships involve a variety of social actors, from public administrations to non-profit organizations, public entities, private companies, such as certain developers of technological solutions, etc.

Public libraries have engaged in a complex process of preserving and disseminating cultural heritage, promoting cultural diversity and intercultural dialogue, and cultivating the skills necessary to integrate the use of technology into current library activities (Kim & Copeland, 2021).

The fact that public libraries can contribute to the resilience of communities in crisis situations by providing essential information and services, or that they can facilitate sustainable development initiatives by providing access to validated information and knowledge make them indispensable in a knowledge society.

Public libraries are experienced curators of complex knowledge bases and vast competencies, allowing users to navigate through different knowledge experiences in a collaborative manner (Wilkes & Miodownik, 2018; Rahmah & Marlini, 2020). Specialized studies have revealed that public libraries are knowledge institutions that operate with knowledge, heritage assets and open resources, thus contributing to the lifelong education of heterogeneous categories of users (Shen, 2023; Loach et al., 2019). Librarians are most often perceived as knowledgeable managers of information, but also experienced facilitators in guiding users in identifying and exploring quality information resources (Bagnall, 2021; Odede, 2020).

In an era of digital transition, public libraries are re-emerging as essential nodes in cultural sustainability networks. They are no longer just ecosystems for accessing knowledge, but are developing as hubs for co-creation, community participation and the preservation of cultural heritage. Their role in facilitating access to shared knowledge and digital resources positions them as central actors in promoting resilience and achieving the SDGs.

Digitization: Essential Pillar of Cultural Heritage Preservation

Digitization is becoming a pressing necessity for the accessibility and preservation of cultural heritage. Public libraries, by transforming physical resources into digital formats, preserve the integrity and value of humanity's cultural treasure trove (Smith et al., 2022). Recent studies emphasize that this transition supports the democratization of knowledge, reducing access barriers for vulnerable communities (Johnson, 2021).

Library Resilience: Adaptability and Sustainability

The concept of resilience is essential in understanding the role of libraries in the modern era. These institutions demonstrate a remarkable capacity to adapt to socio-economic changes, providing innovative solutions to the evolving needs of communities. For example, through the efficient management of resources and the active involvement of the public, libraries contribute to social cohesion and long-term sustainability (Taylor & Green, 2023).

Co-creation and Community Participation

Another central aspect of research is the ability of libraries to facilitate co-creation and community participation. They become catalysts for cultural regeneration, promoting active public engagement in preservation and innovation initiatives (Brown, 2020). Research shows that libraries that implement co-creation programs achieve better community integration and greater cultural sustainability (Lee et al., 2021).

Key Challenges and Future Perspectives

Despite their success, modern libraries face multiple challenges, including limited resources and the pressure to rapidly adopt digital technologies. The solution lies in extensive collaboration between cultural institutions, non-governmental organizations, and communities, as well as in continuous innovation (Martin & Edwards, 2022).

SHIFT Use Case – Increasing the Accessibility of Cultural Heritage Through Technology

SHIFT: MetamorphoSis of cultural Heritage Into augmented hypermedia assets For enhanced accessibility and inclusion project, funded by the Horizon 2021–2027 programme, exemplifies the transformative power of cutting-edge technology in the democratisation of cultural knowledge. This research-innovation initiative integrates cutting-edge tools such as artificial intelligence (AI), machine learning, multimodal data processing, digital content transformation methodologies, semantic representation, linguistic analysis and haptic interfaces. These innovations are designed to increase the accessibility of cultural heritage (CH) institutions, in particular libraries and museums, opening them up to new and diverse audiences.

Promoting Inclusion by Empowering User-Generated Digital Stories

The National Association of Public Libraries and Librarians of Romania (ANBPR) as a use case provider in the SHIFT project, contributed an extensive collection of digital stories that reflect the cultural identity of ethnic communities in Romania. These narratives served as training resources for AI-based solutions developed by technical partners, allowing the refinement of technologies such as Text-to-Speech (TTS) Image-to-Text synthesis or Natural Language Processing (NLP). These tools were empowered to create emotionally engaging and accessible narratives that address a more inclusive audience.

By creatively transforming these digital stories with the help of emerging technologies, the SHIFT project redefined their use, ensuring that they resonate with people with special needs. This effort aligns with the broader goal of promoting inclusion in libraries and museums, contributing to better inclusion of people with various disabilities, especially people with visual and hearing impairments.

The technical approach within the SHIFT project focuses on two main objectives: 1) Harnessing cutting-edge technologies to make cultural heritage more accessible to all; 2) Establishing acoustic correlates of emotions to amplify the vitality and emotional impact of digital stories. This dual approach led to the concept of revitalizing pre-existing digital stories, transforming them into successive iterations of audio-visual constructs, enriched with the contribution of new technologies, with the aim of improving the accessibility of cultural heritage, especially for people with visual and hearing impairments. Advanced technologies such as emotional speech synthesis, machine translation and style transfer are used to transform static cultural heritage elements into dynamic, impactful constructs that foster authentic emotional connections with diverse audiences, including people with various disabilities.

Inclusive Digital Stories – An Approach to Increasing Retention of Vulnerable Users

The use of TTS technologies enriched with NLP models appears as a promising solution to engage people with disabilities in cultural and creative institutions. These technologies help overcome barriers such as linguistic constraints and the lack of emotionally compelling narratives, allowing vulnerable groups to access and connect with cultural assets in libraries in meaningful and participatory ways.

The SHIFT project's inclusive approach resulted in the production of audio-visual compositions adapted to both the cultural and linguistic context of the original storytellers. Thus, the resulting materials post-processed with the contribution of new technologies are not

only accessible, but also authentically representative of the cultural identity and cultural consumption specificities of users belonging to vulnerable groups.

Impact and Future Developments

The meticulous processing of pre-existing digital stories by the technical partners of the SHIFT project consortium - using techniques such as summarization, translation, style transfer and semantic analysis - led to the obtaining of audio-video constructs enriched in terms of content and emotions embedded in the message transmitted to users. These results allow vulnerable groups, especially people with visual and hearing impairments, to fully explore the cultural heritage assets in the Romanian area. The project results highlight the potential of new technologies to reconfigure and diversify the service offers of libraries and museums, opening new avenues for innovation in the field of cultural and creative industries.

SHIFT's technological interventions reflect a broader trend towards inclusion and democratization in cultural institutions. By adopting advanced tools and methodologies, libraries and museums can better serve specific communities, some of them vulnerable, thereby stimulating the participation, co-creation, and long-term engagement of library users with the artifacts curated by libraries.

Conclusion

Public libraries are not only repositories of knowledge, but also active agents of community transformation. Through digitization, collaboration and co-creation, they make a crucial contribution to the preservation of cultural heritage and the development of resilient and informed communities. As they adapt to new technological and social demands, libraries are strengthening their role as key actors of sustainability in the field of cultural and creative industries.

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