

The digitization of research activity is leading to a profound transformation of the conditions for accessing, creating and sharing scientific knowledge. The conventional procedures for communicating research results based on the publication cycle have already been transformed. This multifaceted crisis in the research cycle, also called e-research or digital scholarship, highlights a “digital transformation” which has, first of all, promoted the need for openness in terms of interoperability and freedom of access: a phenomenon called with various specific concepts within the umbrella term of open science.

At the same time, the digital transformation has led to a greater granularity of scientific communication, starting with research data. To respond to the needs of scientific progress, both for validating and optimizing research results, it is no longer sufficient just to publish the summaries of research that must be communicated (articles, books, chapters, reports), but the data itself that was collected in the research cycle and on which these summaries are based should also be shared.

Digital libraries are not limited to offering access to an extensive collection, but their role extends with support services to researchers and students working with digital methodologies and technologies in collaborative and interdisciplinary research projects. Digital libraries can offer one-on-one consultations with experts, customized training, open access repositories (OAR), institutional infrastructure, digital technology workshops and guides, specific support for individual projects, including help with research design, and even assistance with design, prototyping, scripting, mapping and data visualization.

Research data management (RDM) plans are a necessary component of modern research. Increasingly, funding agencies are asking researchers and scholars not only to share their research results for free but also to ensure that their data is easily accessible and available for reuse by other scholars and citizens alike. However, studies on the digital transformation of scientific communication have demonstrated significant variation in terminology, level of policy development, RDM service models and infrastructure among different research institutions in different countries. Efforts therefore need to be focused on raising awareness of the importance of open science and open research data, facilitating research culture change.

The contributors to this *Digital Library Perspectives* issue are all involved in academic libraries, and some of them are open access (OA) experts and engage in conversations in the field. They include academics, researchers, librarians and have a breadth and depth of knowledge in scholarly communication. They have slightly different views on OA, and these are evidenced in this issue, which then documents the digital scholarship transformation at a critical point in its progress.

Magnus Osahon Igbiovvia and Bolanle Clifford Ishola focus on cybercrimes in university libraries in Nigeria and the need to equip library staff with the knowledge to combat this threat in “Cyber Security in University Libraries and Implications for Library and Information Science Education in Nigeria.” Their research examined cybersecurity management in university libraries and its implications for librarian education and training in Nigeria. The results highlight that the perception of cybersecurity among librarians is moderately low, and there is a poor management of the library toward cybersecurity issues. Librarians have a high level of adherence to cyber ethics, a basic understanding of cybersecurity, albeit with a serious interest in learning more. They were not taught cybersecurity in library schools.



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Plato L. Smith II, from the USA, aims to facilitate organizational change by supporting a campus-wide electronic laboratory notebook described in his paper with the title “Leveraging socio-technical processes to support researchers.” The aim of this project was to develop laboratory notebook support services in the context of RDM. The project used a mixed methods research approach, and the action research method has facilitated stakeholders’ active participation. The project has important practical implications for higher education institutions interested in exploiting socio-technical processes to promote the role of libraries. In particular, the librarian assumes a role of collaborator, partner and researcher for adopting the electronic research notebook as a research support service for managing research data.

Faiza Bashir and Nosheen Fatima Warraich from Pakistan examine the concept of blockchain technology in “Future library blockchain opportunities and challenges: A systematic literature review and research agenda.” The purpose of this literature review study is to understand how this technology may affect the future operations and policies of libraries and information centers. The results show that the decentralized nature of blockchain will transform work in libraries and improve the interconnection between communities, and by providing better user data privacy, it could increase collaboration. However, some obstacles are highlighted regarding technology, finances, legal and organizational problems.

Md. Habibur Rahman, Azree Ahmad and Sohaimi Zakaria, from Bangladesh and Malaysia, focus on digital humanities (DH) defined as the application of computational methods and technological tools for humanities research in their paper “Digital humanities practice in university libraries of Bangladesh.” The aim of their research is to identify the current DH state of the art in the university libraries of Bangladesh. The results revealed that there are some obstacles to the practice of DH, such as weak computer skills, lack of funds and legal problems on intellectual property rights. The authors provide some suggestions for the advancement of DH in Bangladesh university libraries.

Lei Zhou and Yanni Yang in “Investigating gamification services of university libraries in China” analyze the gamification services offered by university libraries in China. Results show that university libraries in China often use gamification services as an attempt to improve user experiences, for disseminating scientific and cultural knowledge, computer literacy education, reading promotion, library service promotion and college entrance education. Questions and answers, scoring contests, level-up play and treasure hunting are common forms of gameplay. At the same time, many gamification services combine game elements such as points, leaderboards and votes with the game mechanism to enhance reader participation.

In “Faculty participation in open access repositories (OARs) based on their individual characteristics,” Ahmet Meti Tmava and Sara Ryza from the USA highlight the problem that, as the number of OARs has grown globally, faculty members have been reluctant to submit their work. While there are studies that have examined the socio-technical factors influencing faculty participation in OARs, their study aims to explore individual faculty characteristics, and it revealed a significant correlation between faculty intention to submit papers in OARs and academic discipline, qualification and status. There are other factors that influence faculty intention to engage with OARs, such as familiarity with OA principles and awareness of the institution’s OA policy. The results of this research could be useful in understanding how to improve scholars’ willingness to use OARs.

Musawenkosi Phumelela Khomo, Nalindren Naicker, Colleen Takaingenhamo Chisita and Mogiveny Rajkoomar from South Africa present “Factors contributing to the successful development and use of mobile digital libraries: a systematic literature review,” in which

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they investigate the mobile digital library success factors. This article argues that the concept of digital libraries is evolving due to the dynamic nature of knowledge and technological developments in the infosphere. Their results indicate that a myriad of factors can positively or negatively contribute to the use of the mobile digital library, such as awareness and understanding of staff, the availability of relevant digital content, the level of digital skills, the computer literacy of users and other technological and organizational factors.

Mohammad Nazim and Raj Kumar Bhardwaj from India aim to analyze OA publishing patterns as well as OA policies and mandates in European countries in their paper, titled "Open access initiatives in European countries: analysis of trends and policies." The average percentage of OA publications in European countries is significantly higher (39.07%) than the world average (30.16%), with a clear propensity to make research publications openly accessible through the green OA pathway (41%), versus the OA Gold path (52.30%). The results relating to policies demonstrate that the majority of European funders and research institutes have required researchers to make their research results available, either by publishing their articles in OA journals or by depositing their accepted manuscripts in OARS' archives.

Debasis Majhi and Bhaskar Mukherjee from India identify the lines of research around natural language processing (NLP) that can be significantly applied to libraries in their paper "Identifying research fronts in NLP applications in library and information science using meta-analysis approaches." They analyzed highly cited articles and concluded that the applications of NLP may improve the performance of digital libraries and automated library systems in the digital environment.

This issue closes with an interview with Plamen Miltenoff who is the Digital Scholarship Librarian at the University of Minnesota Duluth. The interview, "A partnership between the library and Digital Humanities scholars," highlights the main issues for the digital transformation of academic libraries, among which we can find the new relationship between librarians and faculty that arises from the role of the "embedded" librarian who actively collaborates as a partner in the research team.

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