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Between Digital Transformation in Libraries and the Digital Humanities

New Perspectives on Librarianship

Ever since knowledge and other results of creative processes have been recorded on mobile information carriers so that they can be passed on from the producer to potential recipients, their dissemination and storage have been accorded an important role. In addition to copyists, printers, publishing houses and literary agents, it is also and above all libraries that, for centuries, have been guaranteeing secure storage for, and appropriate access to, various types of information carriers.

The basic principle of library work has changed very little over time. Regardless of whether they are dealing with papyrus scrolls, medieval manuscripts, printed books, or any other type of analogue or electronic information carriers, libraries have always collected them, stored them appropriately based on the type of material they are composed of, and made them available to the relevant user community. Although various types of library now exist – private libraries, abbey libraries, royal libraries, university libraries, national and state libraries, public libraries, special libraries, etc. – they all follow the same basic library principles of selecting, collecting, indexing, preserving, and providing access to information carriers. Aside from traditional library items, such as books and journals, these carriers can also be manuscripts, documents, maps, photographs, and, most recently, audiovisual and electronic media. Libraries make – as they have always done – these materials available to students, teachers, researchers, members of the public with an interest in science and scholarship, and general-interest readers.

The development of digital technologies for documenting knowledge and creative processes has given rise, not only to digital copies and parallel editions of conventional analogue information carriers, but also to new forms of electronic media and associated additional metadata about digital objects. As well as requiring specific forms of storage and means of access, these types of media in their presentation also need comprehensive contextualisation because their intangible form would otherwise leave users unable to tap into their content and potential use.

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The development of information technology has also created new opportunities and challenges for libraries. While the introduction of electronic library catalogues greatly simplified and improved methods of indexing and recording media, it also created a need for developing new infrastructures and forms of storing and accessibility for the new electronic media. Electronically produced or subsequently digitised books, journals, maps or photographs can only be used if they are as barrier-free as possible, able to be retrieved and displayed at any time, in any place. To guarantee this, modern libraries must use new technologies, appropriate and robust infrastructures, new forms of management, new logics of communication and new routes to financing.

At the same time, the digital form of the source of information makes it possible to link and circulate it beyond its local context in an individual library. Central catalogues offered by library networks allow users to find materials from wherever they are. Digital presentations of electronic media make them regionally, nationally and internationally accessible. Standardised data formats for metadata and digital objects make it possible to create virtual collections according to theme or material, able to be assembled and presented anywhere in the world, irrespective of where the originals are actually stored.

The digital transformation is not only having a profound effect on the way knowledge and creative processes are documented, collected, and shared, it is also comprehensively changing and expanding the way they are produced. Computers are used to compose, format, and structure texts. Software is used to generate, process, and analyse research data. IT-based research infrastructures enable the development and use of new digital research methods. Having information in electronic form opens the door to methods of processing, linking, and contextualisation that would not have been possible with conventional analogue information carriers. Particularly for knowledge production, but also for artistic processes, this has given rise to new forms of collaboration, interaction and exchange between the actors involved. This, in turn, leads to new technologies, new financing needs, and new professional requirements.

What do these developments mean for the way libraries work? And what challenges do they present for modern librarians?

Development in the field of information carriers is resulting in libraries collecting, indexing and storing electronic media to the same degree as conventional types of media. This is due to the current technological and cultural situation, in which digital media are emerging in parallel to analogue media, and in which there are different continually evolving demands articulated by traditional readers and the digital humanities, developing new specific methods and digital tools for their different types of investigation. This has a direct

impact on library infrastructure¹. In addition to traditional furniture, such as shelves and special units for securely storing books, maps, and physical audio storage media, libraries now also need suitable and robust IT infrastructures. Of course, libraries have been using IT infrastructures for decades to run their electronic catalogues and library systems for users and order management. However, the high number and increasingly extensive production of electronic publications mean that libraries now also need systems for storing and presenting electronic data, and for archiving them over the long term. These systems must be accessible at all times and perform adequately. They should ideally use standard interfaces that enable free and unlimited data exchange.

Long-term archiving in particular, presents challenges that are difficult to solve. Given the rapid development of hardware and software and corresponding changes in file formats, libraries need technical solutions that make it possible to view and use the digital content regardless of the data carrier, original file format, or the software used to produce or needed to access it. The wide range of hardware, software, and file formats available today demands correspondingly complex systems that individual libraries are scarcely in a position to develop or operate. As a result, libraries and other knowledge archives generally must come together in partnerships that are suitably designed, contractually and financially secured, and technologically advanced.

In addition to new financing pathways, political support is sometimes also needed, as institutions with different national backgrounds often collaborate. The political will to expand the availability of digital information and digitise analogue information carriers frequently motivates libraries to prioritise collecting digital information and making it available. However, in many cases the technical and organisational efforts, as well as the financial costs involved in storing electronic media and archiving them over the long-term, are not taken into account. Irrespective, libraries must still make these investments and perform the corresponding tasks.

When making digital information accessible, libraries must also address the complex challenge of complying with the law. Copyright, personal rights, and usage rights place limitations on the public accessibility of digital information. Libraries must correctly apply these limitations according to the context of the information, type of material, type of library, use of the information, and the user community.

¹ The changes in libraries that are resulting from the digital transformation in information production are also dealt with by Daigle (2012: 244–264) and Degkwitz (2014: 411–416).

In addition, as academic practice becomes increasingly project-based and the volume of information becomes increasingly vast and unwieldy, libraries must focus ever more closely on the concrete needs of their respective user groups when assembling and presenting collections. They need to acquire materials that respond to specific requests by users, provide the necessary breadth of information, and are capable of fulfilling future needs. Libraries must also consider and seize opportunities for contextualising connections and linking them with other collections, both at home and abroad.

Parallels between analogue and digital information carriers and the corresponding shifts and growth in library tasks are also altering the way in which librarians work and perceive their roles².

For centuries, librarians have been tasked with indexing, managing, and storing physical materials. Today, however, they must also process and safeguard intangible media. This demands comprehensive and specific IT knowledge about data formats, storage and presentation systems, and methods of long-term archiving. Librarians must also understand the technical and organisational frameworks of digitisation in the context of analogue-to-digital conversion. They need to know which scanning devices can be used for different types and conditions of material. They must also be familiar with metadata schemes and formats and be able to generate and use them appropriately, which requires knowledge of interfaces and presentation formats.

Legal expertise is also crucial, as it is necessary for making digitally produced information media available for different types of usage and for negotiating any necessary licences with the providers. Librarians also need to be familiar with the abovementioned laws regarding copyright, personal rights, and usage rights. This knowledge allows them to correctly apply the appropriate legal limitations when making digitised sources of information publicly accessible.

In order to conclude cooperation agreements with other institutions at home and abroad, as well as to open up new opportunities for financing additional IT needs, librarians must also have extensive knowledge of administrative and budgetary matters. In addition, they should be able to participate in political negotiations, master several languages, and possess intercultural skills.

In academic contexts, it is especially important that librarians are comprehensively informed about current academic methods and requirements, as well as about new developments in these areas. This is crucial if they are to interact

² Tappenbeck (2015: 37–48) describes the way in which library tasks and, as a result, the profile of academic librarians in particular are changing in detail.

with academics on equal footing, fulfil needs with precisely tailored information, predict future requirements, and develop their collections accordingly.

Ultimately, librarians must be capable of processing and communicating the materials and content collected in their libraries with both methodological skill, and in a manner that is oriented towards specific target groups. In addition to the soft skills already mentioned, this also demands mastery of the various social media channels in use today.

In recent decades, therefore, the increasingly electronic nature of information production has also triggered a digital transformation in libraries. In addition to conventional forms of collecting, indexing, and preserving analogue information carriers, libraries now also record, store, and present electronic media and information. In parallel to this development, the needs of various library user communities have evolved. Both non-academic readers and those working in academia – particularly in the digital humanities – increasingly request digital information that they can either access using modern devices, or analyse and evaluate using IT-supported processes³.

As a result, modern librarians have updated their centuries-old function as collectors and preservers of sources of information. Their tasks now also involve bridging and minimising the differences between the analogue and digital worlds of information. Due to the many opportunities that digital information offers, librarians can actively participate in contextualising and linking their collections with other collections at home and abroad, becoming actors in academic and research contexts in the process. They have evolved from gatekeepers to brokers of information who, particularly in the field of academic literature, perform an important function in communicating and disseminating information.

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³ More in-depth descriptions and considerations of the new challenges for academic librarianship in particular can be found in the articles by Mittler (2014: 344–364), Bonte (2014: 239–242) and Ceynowa (2014: 235–238).

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