Chapter 117
Library Science and Technology in a Changing World

Lesley Farmer
California State University – Long Beach, USA

ABSTRACT
As the world changes, so does information and its use. This chapter explains functions of library science as impacted by technology within the context of change. Library science provides the basis for mediation between the community and the information it needs to carry out its functions, tempered by the impact of technologies. Librarians apply library science principles as they develop and manage the community’s information collection. In today’s digital environment, the proliferation of information requires that librarians increasingly need to interpret, filter, and evaluate that information. Librarians apply library science-based technical processes to organize and optimize the efficient retrieval of the needed information. In addition, librarians foster information literacy in communities, largely serving as a responsive guide for all of its community members, not only for the purpose of pre-existing library comprising their catalogs and indexes, but the creation of new orders developed and made possible by the computer search capabilities. In these ways, library science is dynamic and facilitates change.

BACKGROUND
Today’s world experiences expanding change. Technology accelerates change processes, not just because of technical advances but more fundamentally because of its impact on global and cyber space. Economic globalization has resulted in international education and workforces. As people of varying experiences and expectations learn and work together by necessity, they will encounter change more often and more quickly, and will need to exhibit more cognitive – and affective – flexibility. In addition, change now occurs on the micro or nano level, unperceivable at the level of most humans. Machines can make adjustments and self-corrections based on intelligent automated agents. At what point do such changes impact humans?

This changing world generates new information, which people often need to comprehend and use in order to deal with change. Over a generation ago, the 1991 Secretary’s Commission on Achieving Necessary Skills (SCANS) report noted information location and manipulation as vital
skills for today’s employees. In a digital world where the amount of information doubles every two years, adults need to evaluate resources carefully and determine how to use relevant information to solve problems and make wise decisions. Furthermore, it is no longer principally an issue of getting information: it’s getting the right information at the right time to do things right and to do the right things.

One of the major factors facilitating – or forcing – change in the information world is technology (Wilhem, 2004). Digital storage and data manipulation have transformed business practices, aiding collaboration and streamlining supply and demand processes. Technology has the potential to collapse space and time, disseminating information and documentation at an incredible speed. Technology has also democratized communication to some degree, bypassing traditional selection and filtering processes to share all kinds of information and misinformation (Webber, 2005). Technology has also expanded the formats of communication. In some media, such as email, people do not have sound and visual cues to contextualize a message. In other cases, the use of Webinars offers opportunities for real-time communication that involves text, sound, images, and movement. However, these same advances have also given rise to the Digital Divide, as people have uneven access to these varieties of technology.

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) (2003) as a whole has embraced information and communication technology, and is facilitating global discussion and efforts. UNESCO’s 2003 declaration summarizes the impact of technology on society, and highlights the role that library science needs to assume. Reitz (2012) defined library science as “the professional knowledge and skill with which recorded information is selected, acquired, organized, stored, maintained, retrieved, and disseminated to meet the needs of a specific clientele.” Library science deals with ways to optimize the physical and intellectual access to information, which has changed drastically with technology advances. Even the definition of the library itself is under re-examination, with the term “information organization” sometimes used to designate the larger idea of an organized collection of recorded information created for access and use by a defined community. As informational media and administrative tools have expanded, thanks to technologies, the nature of libraries have also changed and expanded so that they might vary from a box of books carried by burro in a remote mountainous region to a virtual library access from any Internet-connected device. Furthermore, with the advent of technology, library science professionals need to demonstrate the following competences (American Library Association, 2009):

- Library science foundational knowledge.
- Expertise in information resources and their management.
- Expertise in the organization of recorded knowledge and information.
- Technological knowledge and skills.
- Expertise in reference and user services.
Related Content

Intellectual Property and Patenting Software Period 2012 - 2017
Marcela do Carmo Silva, Davidson de Almeida Santos, Philip Santos Carvas and Carlos Francisco Simões Gomes (2020). *International Journal of Human Capital and Information Technology Professionals* (pp. 64-78).
www.irma-international.org/article/intellectual-property-and-patenting-software-period-2012---2017/249145

Method to Evaluate Process Performance Focused on Minimizing Resistance to Change
www.irma-international.org/article/method-to-evaluate-process-performance-focused-on-minimizing-resistance-to-change/78898

Social Networks and Young People: A Case Study
Neuza Ferreira (2010). *International Journal of Human Capital and Information Technology Professionals* (pp. 31-54).
www.irma-international.org/article/social-networks-young-people/48206

Social Capital as a Determinant Factor of Software Development Productivity: An Empirical Study Using Structural Equation Modeling
www.irma-international.org/article/social-capital-determinant-factor-software/66098

Searching in the Past New Strategic Approaches: Creating and Appropriating Value through Tradition
www.irma-international.org/chapter/searching-in-the-past-new-strategic-approaches/174372