Neal-Schuman Library Technology Companion

A BASIC GUIDE FOR LIBRARY STAFF

SEVENTH EDITION

Robin Hastings

Foreword by Maurice Coleman

ALA Neal-Schuman

CHICAGO :: 2025

ISBNs
979-8-89255-290-5 (paper)
979-8-89255-309-4 (PDF)
979-8-89255-308-7 (ePub)

Library of Congress Cataloging-in-Publication Data

Names: Hastings, Robin, 1973- author.
Title: Neal-Schuman library technology companion : a basic guide for library staff / Robin Hastings; foreword by Maurice Coleman.
Description: Seventh edition. | Chicago : ALA Neal-Schuman, 2025. | Includes bibliographical references and index
Identifiers: LCCN 2024062249 (print) | LCCN 2024062250 (ebook) | ISBN 9798892552905 (paperback) | ISBN 9798892553087 (epub) | ISBN 9798892553094 (pdf)
Subjects: LCSH: Libraries—Information technology. | Library science—Technological innovations. | Libraries and the Internet.
Classification: LCC Z678.9 .B85 2025 (print) | LCC Z678.9 (ebook) | DDC 025.00285—dc23/eng/20250120
LC record available at https://lccn.loc.gov/2024062249
LC ebook record available at https://lccn.loc.gov/2024062250

Text design in the Acumin Pro and Cardea typefaces. Cover design by Alejandra Diaz.

♾ This paper meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).

Printed in the United States of America

29 28 27 26 25 5 4 3 2 1

Contents

Illustrations

FIGURES

TABLES

Foreword

Kids want to grow up to be firefighters, nurses, doctors.
Pilots. Teachers. Lawyers.
Carpenters. Podcasters.
Lots of careers, even sometimes a Librarian.
But technology wizard? In a library? Nope.
What does it even mean to be a technology wizard in a library?
If you work in a library of any size, style, or location, you work with technology every day.

You research something, you write something, you design something, you draw something, you check something out to someone, you help someone find a job, or help someone find the right book (which itself is technology).

You cannot work in a library in any capacity without working with some aspect of technology. Because you work in a library and work with technology, you are a library technologist.

Congratulations! You are going to love this book. I still refer to my coffee-stained and dog-eared fifth edition from 2016.

When you start working in any library, you quickly realize technology is everywhere. You witness that technology is fascinating, powerful, temperamental, mercurial, fun, mysterious, and ever-evolving.

This seventh edition of the *Neal-Schuman Library Technology Companion: A Basic Guide for Library Staff* (referred to as the *Library Technology Companion*) will become an invaluable resource to anyone who works in libraries and is impacted by technology. Meaning everyone who works in a library.

As library technologists (that's you!) likely have to know:

- Every new thing/site/trend/device, sometimes before it becomes a new thing.
- What the pre-teens and teens are using.
- How the newest technology impacts library services.
- How to access legacy systems, technology, and formats and get them working with newer systems, technology, and formats.
- How to have technology be omnipresent but never in the way and always up and running. And if it breaks down, fix it as quickly as possible without interrupting anyone or disrupting anything.

Library technologists have to manage needs, expectations, and workflows between frontline staff who request access and products and don't think about Information Technology (IT) requirements; IT staff who prioritize order and security over access and products; management who have to balance budgets, staff needs and capacity, and expectations of service; and administration who just don't want to think about IT and technology unless necessary.

There is a lot to know about technology and how it is deployed in libraries. You are lucky to have in your hand this copy of the *Library Technology Companion* to help you navigate the diverse needs, expectations, and workflows of any library's technology profile.

Robin Hastings, the book's new author, took the *Library Technology Companion's* sensible structure down to the studs and breathed new life into the book for the second quarter of the twenty-first century. The book has one eye on the past, two hands in the present, and one eye on the future.

Technology never stops remixing old pathways and forging new methods for serving others. The *Library Technology Companion* gives you context, history, and a flexible structure to review what has come before, consider what is current, and prepare for a future without a road map.

Ten years from now, I will look around your office and see this edition of the *Library Technology Companion* with markers (or dog ears) on the important pages and coffee stains because you have kept it so close to your desk.

Maurice Coleman
Speaker, Consultant, Writer
Change Agent & Trainer
Principal, Coleman & Associates
Co-Host, *Information Gone Wild*
Host, *T is for Training*

Preface

Technology infuses every aspect of every day in every library, and thus basic technology skills are a prerequisite for everyone who works in a library. John Burke wrote the first edition of the *Neal-Schuman Library Technology Companion: A Basic Guide for Library Staff* almost twenty-five years ago. Much in the book has changed since that time, reflecting the huge changes that have taken place in libraries. Talk of modems has become talk of makerspaces. MS-DOS and dot matrix printers have passed into the void. Where the author was once concerned with protecting the technology, the profession's focus has now shifted to protecting users' privacy.

Now in its seventh edition, this book is designed to give colleagues sound and sensible ways to consider, access, and implement library technologies to better meet the needs of our users. This book provides a one-stop overview of the technologies used in libraries today. The world of information technology changes at a relentless pace, and today's library managers, librarians, staff members, and students need a simple way to become informed and stay current.

The pages that follow describe the broad scope of systems, software, and specialized devices available to libraries, and show how they are integrated into our institutions' unique processes. The book offers basic definitions, suggests applications and uses, considers implementation issues, and troubleshoots potential problems. Because busy professionals need to learn how to evaluate these technologies and assess their usefulness, the guide provides essential information about planning, security, purchasing, and more. Perhaps most important, a solid grounding in the topic will help library staff members feel more comfortable when collaborating with colleagues or interacting with patrons.

This seventh edition of the guide is a complete update by a new author. The first section of the book offers context on how technologies impact library work and looks at technologies that are currently in use. The second section covers the fundamental technologies that library staff members and patrons use. The third section reviews the range of tools that we employ to present services to our patrons. The fourth, and most extensive section, examines the library technology environment and focuses on how to build and maintain it. The fifth, and final, section addresses possible future developments in library technology and offers resources for keeping track of these developments as they emerge.

Chapter 7 now includes guidelines for marketing libraries on social media. Chapter 9 includes descriptions of virtual reality and augmented reality. Chapter 16 is fully

updated with new sources for tracking down technology information. Each chapter has been updated with a list of new sources for further information. This edition also includes updates of the Library Insights feature, based on interviews with librarians and library staff members who share how they work with a given technology in their library settings.

The *Neal-Schuman Library Technology Companion* contains sixteen chapters arranged in five parts.

PART I Library Technology in Context

- **Chapter 1,** "The Universe of Library Technology," delivers a historical overview of the technologies that have impacted libraries. It concludes with an overview of the Public Library Association technology survey conducted in 2023 that illuminates the current uses of technology in libraries.

PART II Mission Critical Technologies

- **Chapter 2,** "Free Information Resources: Part of the Library Toolkit," discusses the crucial role of free web information in supporting library research.
- **Chapter 3,** "Library Electronic Resources: E-books, Full-Text Articles, and Streaming Media," addresses this area of library collections.
- **Chapter 4,** "Organizing Information to Make It Easier to Find: Library Systems, Discovery Layers, and More," reveals opportunities to expand the possibilities of the library catalog.
- **Chapter 5,** "Computing Devices in Libraries: Desktops, Laptops, Tablets, and Mobile Devices," covers the many options library patrons and staff members can use for computing tasks.

PART III Technology That Makes Library Services Run

- **Chapter 6,** "Library Websites and Web Services," emphasizes the importance of creating an internet presence for your library that offers unique services for patrons.
- **Chapter 7,** "Social Networking and Patron Participation: Marketing and More," highlights the importance of social networking tools and technologies for reaching and interacting with our patrons.
- **Chapter 8,** "How Library Staff Learn and Teach: Distance Learning, Learning Management Systems, and Presentation Technologies," demonstrates how technology can aid in staff development and training and how library staff members can fulfill their educational roles.

- **Chapter 9,** "Makerspaces and Libraries," explores the possibilities for adding creative activities and technologies to libraries.

PART IV Building and Maintaining the Technology Environment in Libraries

- **Chapter 10,** "The Right Technology at the Right Time: Planning, Evaluating, Buying, and Implementing Technology," offers a guide for purchasing equipment, putting systems into operation, and starting a technology planning process.
- **Chapter 11,** "Meeting and Supporting Patron Technology Needs: Universal Design and Adaptive and Assistive Technologies," offers guidance that will ensure that your technologies meet and serve the needs of a wide range of users.
- **Chapter 12,** "Building the Technology Environment: Infrastructure, Ergonomics, and Sustainability," explores ways to make any facility comfortable, accessible, and sustainable for the long run.
- **Chapter 13,** "Protecting Technology and Technology Users: Securing Collections, Enhancing Computer Security, and Protecting Privacy," presents guidelines for protecting the library and its patrons from physical and digital dangers.
- **Chapter 14,** "The Death of Technologies: Preservation Issues and Saying Goodbye," analyzes current technologies for recording information and the challenges of retrieving that information from dying and dead technologies.

PART V Where Library Technology Is Going and How to Stay Informed

- **Chapter 15,** "Our Technological Futures: Maintaining Library Services in Infinite Possibilities," looks ahead to how technology may and will impact our patrons, our libraries, and our tradition of service.
- **Chapter 16,** "Keeping Track of Technology Changes," presents resources for learning more about the latest developments and issues.

A glossary of useful terms is located at the end of the book. Terms found in the glossary appear in BOLDFACE CAPITALS when they are introduced in the text.

There is a great deal of information within these pages, but there is even more to discuss. You can always reach me at robin.hastings@gmail.com.

PART I

Library Technology in Context

CHAPTER 1

The Universe of Library Technology

Libraries have long played an essential role in containing, preserving, and sharing information. People throughout the world have, over thousands of years, produced and relied on a variety of forms of information, including creation stories, herd counts, business orders, tax rolls, and personal correspondence. This information was recorded because individuals in these societies saw some purpose in sharing such information with their contemporaries and, in some cases, preserving it for future generations. The explosion of information we have seen for more than fifty years is merely the latest skirmish in a long-running battle: How can individuals and societies maintain their **DATA**—collections of facts, history, images, and fiction—as the volume of these items increases so rapidly? Over thousands of years, libraries were adopted as a mechanism for accomplishing these purposes; were it not for libraries, we would have little or no knowledge of past generations or cultures.

At each step along the way, libraries would have failed in their efforts without **INFORMATION TECHNOLOGY (IT)** of various kinds. We tend to think of **TECHNOLOGY** as specifically involving computers and electronic devices, but technology encompasses both the products and the processes that people create. Handling information requires a diverse collection of practical tools and processes. Information technology as a whole includes any items or methods for containing, transmitting, and storing information. In the library world, processes include the methods for rebinding books, classifying the items in a collection, or creating descriptive metadata for digital items. Full-text periodical **DATABASES**, mobile devices, and library shelving units are examples of technology products.

TRENDS IN LIBRARY TECHNOLOGIES

Two main goals have driven library staff to use technology: to better serve the needs of the library's community and to streamline the workflow of the staff.

The technologies that have impacted and continue to impact the library world fall into three main groups: (1) those created specifically for libraries and library work, (2) those created within the larger world and adapted for use in libraries, and (3) those created in the larger world and brought into libraries without much alteration.

The first group encompasses developments such as Melvil Dewey's **CLASSIFICATION SYSTEM**, the card catalog, and the **MACHINE-READABLE CATALOGING (MARC) RECORD**. In the second group we find examples such as the shaping of computer inventory control systems to work as library management systems to host **LIBRARY CATALOGS** and manage circulation and cataloging systems, the molding of online databases to include periodical citation information and full-text articles, and libraries' own customization of website design for internal purposes. We see many examples of the third group in the use of standard technology, such as e-mail, telephones, copiers, bar-code readers, RFID (radio frequency identification) tags, and many computer applications.

KEY DEVELOPMENTS IN LIBRARY TECHNOLOGY

Many information technologies have been created over the years. The library itself is a technology that was developed to manage information storage and retrieval. The following discussion reviews key developments in information technology that have affected libraries over the years, in roughly chronological order. Some of these technologies are still in full use today, whereas others have had their roles reduced or have been replaced. They represent processes for retaining or organizing information as well as manufactured tools and other products. All technology is designed to meet a particular need, and although few needs ever disappear completely, humanity is always finding new ways to better address long-standing needs. It is important to remember the former roles of obsolete technologies as we review today's technologies and look ahead toward the technologies that may replace them in the future.

DEVELOPMENT 1 DIALOG and Online Databases

In the 1960s, work began on a searchable index of papers and journal databases at Lockheed Martin and NASA. By 1972, the DIALOG Information Retrieval Service was made commercially available, providing users access to ERIC (Educational Resources Information Center) and NTIS (National Technical Information Service) databases as well as other indexes. It was named after the language used to query it. It quickly became a popular service at libraries, despite the fact that connecting to DIALOG and other online services could be expensive (users were charged a set fee per minute), There have been many changes to the service since 1972, but it still exists, and since 2008 has been known as ProQuest Dialog.

Companies such as DIALOG, BRS, and LexisNexis began to offer libraries access to periodical indexes and full-text newspapers, magazines, journals, and reference resources. Users could choose one or more indexes or periodical titles to search and then enter terms to locate related citations, abstracts, or articles.

The advent of online searching meant that for the first time, libraries could provide access to resources that they did not physically own. This was often expensive, but many libraries were nonetheless willing to offer this service to their patrons. Online searches were initially conducted by library staff members, in part because the command language for searching was difficult to learn and also because of the expensive connection fees. Eventually, the methods of searching grew easier (and pricing plans began to change) and library patrons, known as end users, could more successfully attempt searching on their own. The move toward today's virtual, online library was underway.

DEVELOPMENT 2 The ILS (Integrated Library System)

The creation and standardization of a tool to help people locate the information held by a library was an impressive development in information technology. Although libraries had been organized by local models of a classification system for years, the invention of the CARD CATALOG in 1791 in France (information was recorded on the backs of playing cards, which at the time were blank), and the substantial growth of its use by libraries from the 1850s onward, gave library users an additional method for finding items beyond browsing the shelves. It also enhanced the work of libraries in at least two ways. First, it improved the ability of the library staff to locate materials and therefore provide service to their patrons. The card catalog allowed the library's collection to be searched from one location without having to physically browse and scan the shelves as well as offering multiple entry points (author, title, and subject) to access the collection. Second, the creation of a relatively easy-to-use tool to find library information allowed the public to participate directly in the research process. Using the catalog was a straightforward process: if you wanted to find books by Zora Neale Hurston, you looked in the drawers for the *H*s and then browsed through the cards until you found her works. Once catalogs became standardized, it was easy for patrons to walk into any library and see what was available on a subject, browse works written by a given author, or confirm whether a given title was held. The card catalog was the first example of an end-user searching tool: the patron gained the freedom to search, and library staff discovered a new instructional endeavor.

Through the use of classification systems and card catalogs, library staff members were doing a fine job of managing information. There came a point, however, when developments in technology from beyond the library suggested that there could be easier ways to manage large collections of materials and provide broader access to the

catalog for a large number of users. Librarians looked to the power of computers to help make libraries more efficient. Several libraries joined forces with computing professionals in the late 1960s to create the first automated library systems, which operated from large **MAINFRAME** computers and had **TERMINALS** for library staff and users to access the systems.

The first ILSs were introduced in academic and consortial environments. Products like NOTIS (from Northwestern University), BALLOTS (from Stanford University), and WLN (the Washington Library Network) were the first products on the market for the automation of libraries in the 1960s and 1970s. For example, NOTIS (the Northwestern On-line Total Integrated System) started development in 1967 and began spreading to installations at other sites in 1979.

DEVELOPMENT 3 The MARC Record

Once the ILS was created, a way to encode the information from the card catalogs that had been in use was needed. Each item in the catalog was represented in a digital **MARC RECORD**, which contains bibliographic information along with subject headings, call numbers, and other useful information (see figures 1.1 and 1.2 for examples). As we will see in chapter 4, these systems allow libraries to keep track of the items that they own and circulate without requiring a large number of cards and reams of paper. The quest for these systems drove libraries into the computer age, setting the foundation for today's world of digital information.

DEVELOPMENT 4 Personal Computers

PERSONAL COMPUTERS (PCs) and computing devices have made a huge impact on society, including in libraries (see chapter 5). PCs increased libraries' computing power and allowed greater flexibility in choosing their office productivity applications and **MANAGEMENT SOFTWARE** than was possible with mainframes, the powerful but much larger and more expensive machines that came before desktop computers. PCs also provided a platform for libraries to experiment with new media types, such as CD-ROMs (**COMPACT DISC READ-ONLY MEMORY**), and to access remote information services (periodical databases, shared cataloging databases, and eventually the internet). In a relatively short period of time, libraries moved from having just one or two PCs in the back room to offering dozens and then hundreds of machines to the public. The library as we know it today could not exist without the personal computer as both a staff resource and a means for the public to access library resources. The original desktop devices were a key step that led to the use of laptops, tablets, and other mobile devices as methods for interacting with library resources.

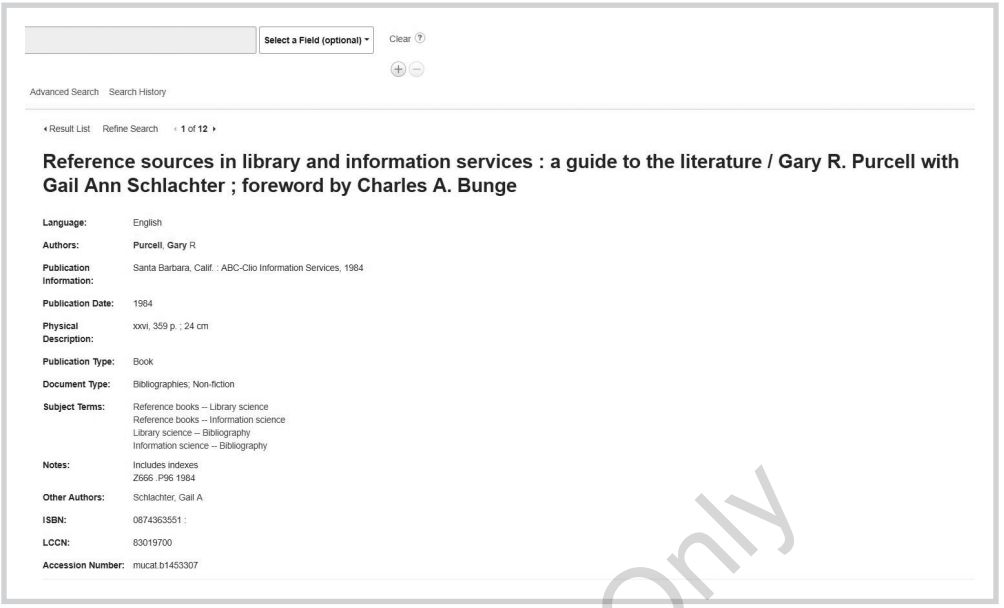

FIGURE 1.1 Screenshot of a library catalog record for an item

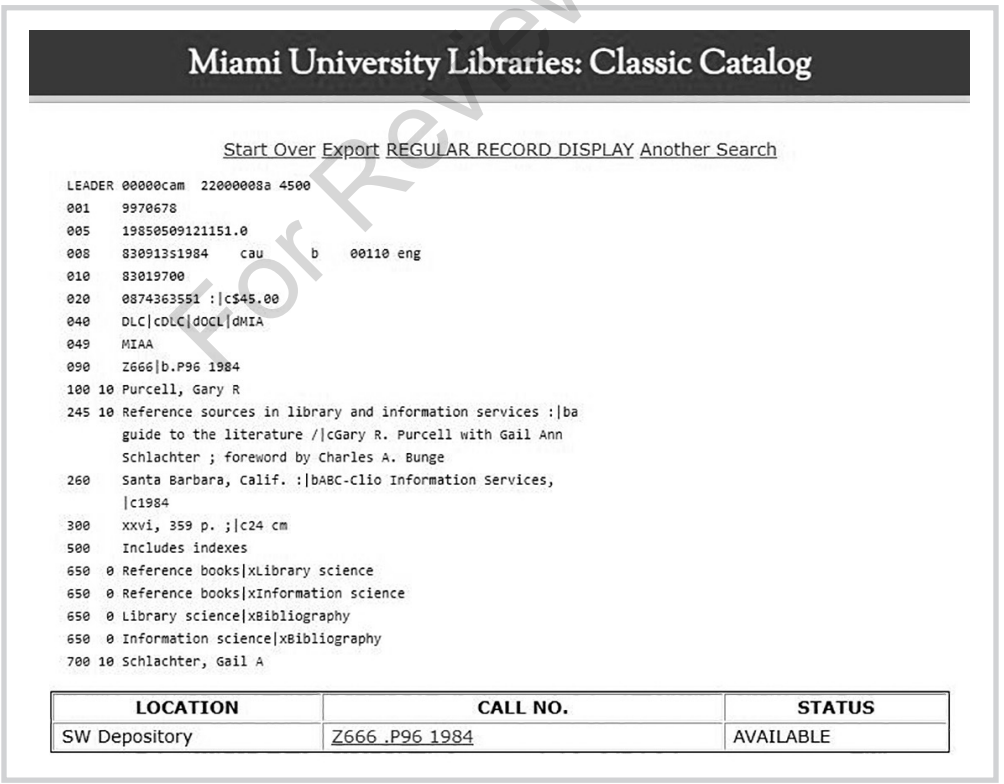

FIGURE 1.2 Screenshot of a MARC record for the same item

DEVELOPMENT 5 Audiovisual or Media Items

As with computers, audiovisual or **MEDIA ITEMS** were created within society at large and were adopted by libraries as a new way of packaging information. Adding media items such as films, **VIDEOCASSETTES**, **COMPACT DISCS**, and **DVDS** to libraries over the years (see table 1.1) dramatically changed collections. These new media also created challenges in terms of shelving, location, and protection, although as streaming video and audio replace physical media, these concerns have faded. The rich diversity of nonbook formats has allowed libraries to better serve their communities, who expect to have access to a wide variety of media. Consumers' expectations that these kinds of media will be included in collections caused libraries to rethink their collection development and organization practices and to more readily adopt new media. **AUDIOVISUALS** is the historic term for such media, but "media" has become a common replacement term, with some collection areas in libraries labeled only with the type of item included in them (e.g., DVDs). The addition of audiovisual resources to library collections eventually led libraries to provide access to databases of audio recordings and collections of streaming video. It also prompted libraries to begin accepting other technologies into their collections and laid the groundwork for a host of modern library services, from public computers to e-books to makerspaces.

DEVELOPMENT 6 The Internet

The internet has had a strong presence in libraries and library planning for more than thirty years. From the early days of library Gopher sites—internet applications predating the World Wide Web that allowed users to browse text-based resources using menus or lists of available information but offered no hyperlinks or other amenities—to the first websites and to today's full-text periodical indexes, e-books, and mobile apps, the internet has become the mainstay of the library world. The linking of **SERVERS** into **NETWORKS** has revolutionized communications and information seeking, giving people the ability to access collections of information and services through their individual computing devices. What started with four institutions in 1969 now reaches across the world and into nearly every area of life. The internet may not reach absolutely everyone (as we will discuss), but everyone is impacted by it.

The internet continues to motivate library staff to retool how they deliver services to patrons and to constantly reconsider how they can best present the wealth of free online information alongside library-purchased print and digital resources. Libraries use the internet to access resources and as a delivery mechanism to distribute them to patrons within and beyond the library. They enable services that offer help to library patrons by answering reference questions via text messages, chat, or e-mail, enabling them to offer assistance no matter the time of day or where patrons are located. Libraries

TABLE 1.1 Timeline of invention dates for audiovisual items

AUDIOVISUAL MEDIUM	DATE INVENTED
Phonograph LP record	1948
Audiocassette	late 1950s
VHS videocassette	1976
Videodisc	1978
Compact disc	1982
CD-ROM	1984
MP3	1995
DVD	1995
iPod	2001
YouTube	2005
Netflix's streaming service	2007
iPhone	2007
Amazon Kindle	2007
Android Mobile Phones	2008
iPad	2010

NOTE: The dates for CD-ROMs and earlier media were taken from Walt Crawford's *Current Technologies in the Library: An Informal Overview* (Boston: G. K. Hall, 1988). Dates for the MP3 file format and later media forms were confirmed in Wikipedia.

organize library-licensed resources on their websites to help patrons find what they need. They also made good use of the internet during the COVID-19 pandemic to continue providing as much service to their patrons as possible. Although libraries have achieved many successes using the internet, they still face several challenges. As will be discussed in future chapters, in a world of ever-present access to information, where does the library fit in?

DEVELOPMENT 7 A Society That Wants and Requires Technology

Developments in libraries are influenced by the expressed needs and expectations of each library's community. As with some of the earlier developments on this list, society often creates something new that libraries then decide to include in their collections. This process has been driven by our patrons requesting items or by people in our communities taking an interest in new media or services before we have adopted them. The

receptiveness of our communities to new technologies will continue to shape libraries in the future.

Technological changes are not always willingly embraced by library users, however. As society grows more dependent on various information technologies, some patrons find themselves caught in the digital divide. Although they are often required to use computers or access materials on the internet to complete homework, fill out government forms, or pursue commercial activities, some people cannot afford access to the required technologies or lack the technological literacy required to do so. Libraries are therefore taking on the responsibility of providing this access and offering training assistance.

WHAT TECHNOLOGIES ARE LIBRARIES USING TODAY?

Libraries today employ a wide variety of technologies and technology applications that rely on the internet and web-based resources. Library staff and patrons make daily use of resources and services provided through the internet and interactions with one another online. At the same time, most libraries offer collections composed of many different formats that store information (e.g., books, periodicals, electronic reference sources, DVDs, streaming media, and e-books). Traditional materials, like print-based books and journals and container-based items like DVDs, will continue to be added to collections, but the portion of the library acquisitions budget allocated to them will continue to drop.

Although it is doubtful that physical books will ever disappear, they are increasingly being complemented and expanded by access to online, streaming information. We must recognize that as the information work of libraries evolves, library staff members are still in the business of providing access to materials and technologies that certain people cannot afford and may often have difficulty navigating on their own. It is crucial for us to understand the range of available library technologies to help make the right decisions for our libraries as we respond to the needs of our patrons.

CURRENT TECHNOLOGIES IN USE AT THE LIBRARY

On July 9, 2024, the Public Library Association (PLA), a division of the American Library Association (ALA), released the latest results from the 2023 iteration of its annual technology survey (see Selected Sources at the end of this chapter). It offers some interesting statistics for you to consider as you think about library technology for your library and patrons.

One of the survey's most interesting findings is the increase of mobile internet options (most often mobile hotspots—see chapter 5 for more information). Though a

relatively rare practice pre-pandemic, a whopping 47 percent of public libraries now offer some form of mobile internet access. The number of public libraries offering devices for checkout (most frequently laptops) also increased during the pandemic, from 17 percent in 2020 to nearly 25 percent in 2023. Consider another pandemic-era technology, the e-resource (books, music, movies, tv, etc., distributed using multiple technologies). By 2023 nearly 95 percent of public libraries offered some sort of e-resource to their patrons, with 85 percent providing streaming access to materials through partnerships with vendors.

The PLA survey also looked at training for providing technology skills and digital literacy. 95 percent of public libraries offer some sort of digital literacy training these days! Nearly 61 percent of those responding intended to offer some kind of artificial intelligence training in 2025, with 17 percent looking at introducing virtual reality training in the same time period.

As for offering internet access to patrons in the building, 99.4 percent of all public libraries offer wireless access to their patrons. According to the 2023 survey, nearly 75 percent have fiber-optic access to the internet, a 10 percent increase from the 2020 survey. One concern is the availability of broadband access in public libraries. Nearly 29 percent of libraries overall don't meet federal broadband guidelines, but 35.4 percent of rural and small-town libraries fail to meet those benchmarks. (See chapter 5 for more discussion of broadband internet access and the federal guidelines.)

Survey results concerning the staffing of IT functions in libraries are also of interest. Only 20.7 percent of libraries have full-time IT staff, and those are mostly city and suburban libraries—the numbers are lower for rural and small-town libraries. Some of the IT support for libraries that don't have their own staff can come from a consortium or system to which they have access (47.5 percent). Still, nearly 6 percent of rural and small-town libraries have no IT support at all. Taking this information into account when you are managing your technology is crucial to ensure that you are providing the kinds of technologies that your patrons want and expect from your library.

QUESTIONS FOR REVIEW

1. What are the three sources from which library technologies emerge?
2. What current technology, in your view, could have as great an impact as the key developments discussed in this chapter?
3. Is there an unmentioned historical development that you would add to the list?
4. How would you define the term technology?
5. Describe the impact of one of the developments that you have seen in your own library.

SELECTED SOURCES FOR FURTHER INFORMATION

Crawford, Walt. *Current Technologies in the Library: An Informal Overview.* Boston: G. K. Hall, 1988.
This source gives an excellent history of the technologies available in 1988, from microfilm to computers.

ETHW. "Milestones: DIALOG Online Search System, 1966." February 14, 2024. https://ethw.org/Milestones:DIALOG_Online_Search_System,_1966.
This page offers a history of the DIALOG service in libraries, from 1966 on.

Goldstein, Charles M. "Integrated Library Systems." *Bulletin of the Medical Library Association,* 1983.
This source gives a history of the ILS and the thinking behind the development of this technology for libraries.

King, David Lee. "Chapter 1: Why Stay on Top of Technology Trends?" *Library Technology Reports* 54, no. 2 (2018): 6–13.
This first chapter of this report addresses the importance of keeping an eye out for new developments and trends to guide our future work. It also provides examples of technology adoption and technology life cycles that can inform our perspective of changes in libraries over time and yet to come.

Musmann, Klaus. *Technological Innovations in Libraries, 1860–1960: An Anecdotal History.* Westport, CT: Greenwood Press, 1993.
This is an interesting history of library technologies developed, adopted, or adapted during a century of monumental change for libraries.

Public Library Association. *2023 Public Library Technology Survey: Summary Report.* Chicago: Public Library Association, 2024. www.ala.org/sites/default/files/2024-07/PLA_Tech_Survey_Report_2024.pdf.
This is the most recent version of the Public Library Technology Survey available as of this writing. It includes a number of interesting statistics that can be helpful as you consider what your library and library patrons will need in the future.

Sharma, Ravindra N., ed. *Libraries in the Early 21st Century: An International Perspective.* Vol. 1. Berlin: Walter de Gruyter, 2012.
This collection provides individually authored chapters on the history and development of libraries worldwide with a special focus on technology.

Srinivasan, Ramesh. *Whose Global Village? Rethinking How Technology Shapes Our World.* New York: New York University Press, 2017.
This work examines how the Western view of an interconnected global village really looks from the perspective of people elsewhere in the world and in different strata of the digital divide.

Wiegand, Wayne A. *Irrepressible Reformer: A Biography of Melvil Dewey.* Chicago: American Library Association, 1996.
Wiegand's work provides a full history of Dewey's life and his impact on librarianship, from his invention of the classification system to his work at the American Library Association and his efforts to professionalize library work.

Index

f denotes figures; *t* denotes tables

B

C

D

E

F

G

H

I

M

N

O

P

Q

R

S

T

U

V

W