Chapter 7  
Managing Automated Storage in the 21st Century Library  

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ABSTRACT  
The Mathewson Automated Retrieval System (MARS) is the second largest automated library storage system in the world. Housed in the University of Nevada, Reno’s spectacular Mathewson-IGT Knowledge Center, MARS provides storage for half of the print collection, and nearly all government documents, special collections materials, and multimedia equipment. This chapter will explore automated library storage management, including maintenance and care of the equipment, safety, stewardship of the collection, and how automated storage challenges our beliefs about the purpose and function of libraries.

INTRODUCTION  
The Mathewson-IGT Knowledge Center opened August 11, 2008, on the University of Nevada, Reno campus. UNR is a large academic institution with 18,000 undergraduate and graduate students and nearly 1,000 full and part-time faculty. The University Libraries include three campus locations—the Mathewson-IGT Knowledge Center, which is the main library location and serves the majority of academic disciplines, the DeLaMare Science and Engineering Library, and the Savitt Medical Library. The Knowledge Center serves University faculty, staff, and students through electronic and physical library collections and extensive technology resources. Named in honor of a $10 million joint donation from former Chief Executive Officer Charles N. Mathewson and International Game Technology, the Knowledge Center is considered to be one of the most technologically advanced libraries in the country. The design and functionality of the building hinges on the flexible spaces available to students for a variety of learning activities. The ability to provide learning spaces such as numerous group study rooms, café style booths, and over 300 computer workstations throughout the 295,000 square foot structure, is dependent on efficient storage of library collections. By including an automated storage and retrieval system (ASRS) the architects...
were able to save approximately 100,000 square feet of space that would have been filled with traditional shelving.

The Mathewson-IGT Knowledge Center is the physical manifestation of the vision of former Dean of University Libraries and Vice President of Information Technology, Dr. Steven D. Zink. What is a Knowledge Center, and how does it differ from a library? Dr. Zink describes this distinction best in the case statement written to secure funding for the $75 million project.

The single greatest intellectual force and competitive advantage in the 21st century is the rapid assimilation of new knowledge to fuel innovation. New knowledge, applied to existing tasks, results in increased productivity; new knowledge applied to new challenges and tasks is fundamental to innovation. Recognizing this critical interplay between knowledge and innovation, the University of Nevada, Reno has established one of the first centers in the nation built specifically to embrace these dynamics of the 21st century. The Knowledge Center will encompass all facets of the digital age in a single, synergistic complex. Computing and information technologies are combined with the latest in graphical design technologies and the resources of the university library in a physical environment designed to maximize learning, nurture the production and distribution of new knowledge, and stimulate and sustain innovation. (Zink, 2010, p. 16)

In order to create Dr. Zink’s vision, it was essential that the design of the building supported a wide variety of user spaces, and that those spaces were flexible and adaptable to keep pace with a rapidly changing learning environment. The building is, however, also a library, and the one million volume collection needed a home. Automated storage was familiar in the state of Nevada, owing to the system in the Lied Library at the University of Nevada, Las Vegas (UNLV), and several universities in California. After careful consideration of the size and anticipated growth of the library’s print collection, the automated storage system was designed with enough space to realistically accommodate the current collection and twenty years of growth. The Knowledge Center offers a broad range of support for media design, poster printing, computing, instructional design, and high-end mathematical, statistical, and geographic information systems software. The look and feel of the building is comfortable, yet elegant, with group study rooms equipped with large monitors and laptop connections, and a mix of study carrels, tables, and comfortable seating. In order to accommodate ever increasing mobile computing such as laptops and smart phones, study tables and carrels contain multiple electrical outlets. This first floor of the building, @One, is distinct in design and function, with a focus on high-end computing, multimedia design, large format poster printing, and multimedia checkout. The name @One originates from the concept of having all of the production and software resources, including a sound recording booth and green-screen special effects studio, plus traditional library research help, a 163-seat auditorium, computer training lab and video conference room, @One place, on floor one. There are traditional book stacks on floors three through five, housing approximately 50% of the library collection, with the remaining half stored in MARS. Daily operations of the system are managed by the MARS and Stacks Maintenance supervisor and the general collection is stored and retrieved in the operator area located in the Library Services department. The department is a combination of circulation, interlibrary loan, print and electronic reserves, and MARS and stacks maintenance. Everyone in the department uses the system regularly.

Automated storage and retrieval systems provide libraries with an opportunity to optimize space and store their collections on-site. By repurposing a technology well known in private industry, libraries win space and efficiency, but must learn to adapt to an industrial workplace typically unfamiliar to