Successful stores are operated to provide a positive experience for the visitor. A national park meets the visitor more than halfway; helpful rangers, visitor programs, informative literature, and interpretive signage all contribute to a memorable and meaningful experience. Successful stores strive to extend that level of service and accommodation into the store itself. Store design, as discussed above, is an important feature of service, as is having the merchandise that appeals to visitors, but equally important is training staff who go beyond being merely courteous and proficient. The store staff can help fulfill the store's (and park's) mission by assisting customers to appreciate the connection between the park's collections and themes and the merchandise. The store is often the last stop in the park and therefore the last opportunity to reinforce the park's message. Indeed, providing helpful insights about park collections and themes is doubly important for those visitors who, regrettably, never get beyond the store or visitor center.

These four characteristics of a successful store can be summarized in a single sentence. **A successful park store is site-specific**. Nothing undermines the potential of a park store more quickly than unresponsiveness to the interests and needs of visitors, unrelated or low quality merchandise, a generic appearance, or poor customer service.

Stores fulfill their retail and interpretive mission when they commit to interpreting the park's museum collections and themes. When they are given the freedom to do so in broad and innovative ways, they not only serve their financial mission but also enhance their interpretive function and expand the impact of the park far beyond its boundaries. It is a creative endeavor and takes the active participation and sympathetic support of the interpreters, park administrators, and those responsible for the collections.

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Jane Sledge

Surf's Up—
Do You Know Where Your Wet Suit Is?

Recently I noticed my son, John Jensen, age 7, wearing his personal floatation device, an object known to many as a life jacket, as he used our home computer. I didn't ask why, but I wondered if he were worried about falling overboard into the vast ocean of information. I haven't seen many museum staff sporting life jackets or wetsuits lately, but I know that they are concerned with the vastness of the information space and its challenge to museums to provide authentic, interesting, and reliable voyages. This is not a new concern. In 1968, Everett Ellin wrote, "As the museum audience everywhere continues to grow at an alarming rate, we are coming to recognize that the textual and visual data descriptive of our public collections (of art, scientific, and historical material) must be made more accessible and employed in far more imaginative ways than are possible by conventional means."[1] The trouble is, we are still searching for answers.

Museums are faced with many hurdles in using the Web creatively: existing processes and procedures are hard to change; technically knowledgeable staff are scarce and expensive; revenue generation from online products has yet to provide significant returns; virtual audiences are mysterious; digitization and content creation are expensive; and copyright issues are ubiquitous. We face more challenges in 2000 than Ellin in 1968 ever considered possible.

Process

Robert Janes writes, "…there is abundant evidence to indicate that organizational change and adaptation occur with great difficulty in museums."[2] Shifting staff priorities to work in a digital environment, to produce, mark-up, and

share content on an on-going basis, as part of regular work, is an enormous, threatening, and often difficult change for museums. It requires the commitment and support of senior management who are often leery of such an undertaking because there have not been many reports of success stories. There are few tried and tested models to follow. While some museums[3] are beginning to rethink their project management structures so that the idea or the concept to be developed comes first and then careful consideration is given to the multiple media in which the idea will be presented, most museums are continuing to see collections information systems and the Internet as two separate entities.

For most of the last 30 years, when museums thought about information management systems, they focussed on databases. Information resource management is more than this—it also includes text, images, videotape, film, and sound recordings. In 1998, the Consortium for the Computer Interchange of Museum Information (CIMI) undertook a case study to understand how information flowed in a museum. The Integrated Information Management Working Group reported, "In most institutions these records or documents are viewed as discreet sets of material usually controlled and maintained by those who created them. For example, the registrar's office might hold all of the object files; curators would maintain scholarly research, exhibition files and related documents; public affairs staff create information for publication; and the educators provide the public with many types of learning materials." The Working Group found that there was no clear understanding of what "integrated" information meant and that while museums might aspire to implement "standards," they preferred ad hoc solutions because this provides more flexibility.[4] Ad hoc solutions are easier because they can be tailored to fit existing systems and processes, but they mitigate against integrated information both within and without the institution.

It is always easier to integrate information that adheres to guidelines, such as the *National Park Service Museum Handbook*. A number of museum guidelines for information exist; the web site of the International Committee for Documentation (CIDOC), <http://www.cidoc.icom.org>, provides an overview. The Museum Documentation Association (MDA) web site, <http://www.mda.uk.org>, also offers a good standards section. But, for the most part these published standards are for databases, not for text and other media. CIMI has working groups studying the use of meta-data tags for resource discovery and the application of XML, an internationally accepted standard for structuring electronic information for access, in museum environments. This is an important area to watch for new developments.

It has been more than 30 years since Ellin wrote about the challenges of making our information accessible to our public audiences. For a large portion of this time museums considered the major challenge to be one of collections management and inventory control, not accessibility. In 1997, Howard Besser predicted the increasing convergence of the worlds of collections management and online exhibits.[5] How far have we really gone with the convergence? One example is a recent project, Intelligent Labelling Explorer (ILEX), developed by the University of Edinburgh in collaboration with the National Museums of Scotland. ILEX offers the ability to tune museum labels to account for different types of visits, the interests of the visitors, and their evolving knowledge during a visit.[6] "The knowledge base has two main sources: firstly information parsed straight from the museum's own database, and secondly information gathered during a number of interviews with the gallery's curator."[7] This type of project is more the exception than the rule. While many museums offer web sites with virtual exhibitions and access to online catalogs, it is rare to be able to click from an interesting object in a virtual exhibition to similar objects in the collections information system to a museum publication about the context of these objects. While cyberspace may seem to threaten national boundaries, the boundaries remain strong between different museum functions such as exhibits and registration, and systems integration remains elusive.

Staff

Even well-off museums have difficulty retaining staff with information management and web design skills. Six figure salary offers from recently established Internet companies are very tempting to underpaid museum staff. It is equally difficult to hire knowledgeable and creative staff when recent graduates of university digital communications programs are offered starting salaries greater than a small museum director's salary. Many museums owe a large vote

of thanks for web site development to their enthusiastic volunteer supporters and creative partnerships with universities and corporations. While museums are challenged to generate enough funding for "bricks and mortar" operations, they increasingly have to consider expanding budgets for the virtual realm. Some museums find that virtual visitors significantly outnumber physical visitors. "The Museum of the History of Science in Oxford [England] has a website [sic] that reflects its great collections of scientific instruments. It currently receives about 100,000 individual virtual visits a year (about 1.5 million hits) compared with 35,000 actual visitors," <http://www.mhs.ox.ac.uk>.[8] Virtual visitors are "real" visitors and require service.

Revenue Generation

Unfortunately, it has been difficult to generate revenue from the virtual visitors. Visitors don't expect to pay for service. However, they will pay for other things. Within the last 18 months a number of e-commerce businesses have begun to solicit museum participation in museum store networks: <http://MuseumCompany.com>, <http://www.MuseumNetwork.com>, <http://www.MuseumShop.com>, <http:// www.imageexchange.com>, and <http://www.theorigins.com>.

Opportunities have arisen in the area of content offerings. Recently consultants[9] have begun to recommend that museums consider the licensing potential of online content. Increasingly opportunities are being offered to museums to join consortia that aggregate and package content. The Museum of Modern Art, New York, and The Tate Gallery, United Kingdom, announced in April 2000 that they had formed a partnership and agreed to create an independent for-profit e-business that will establish the premier destination on the Internet for individuals to access, understand, and purchase the best in modern art, design, and culture."[10] Other examples include: the Art Museum Image Consortium <http://www.amico.org>—AMICO is a not-for-profit association of institutions with collections of art, that have come together to enable educational use of the digital documentation of their collections; Fathom.com—a unique international consortium of leading universities and cultural institutions dedicated to creating and disseminating knowledge; and the Research Library Group's Cultural Materials Initiative <http://www.rlg.org/culturalres/goals.html>.

To participate in these content ventures, museums will be called to dedicate more staff to content creation and content management. At the May 2000 American Association of Museums annual meeting, Naree Wongse-Saint discussed the difference in scale between museum operations and private industry noting that she had moved from a not-for-profit network (ArtsEdNet) with a staff of five to a for-profit portal (Lightspan.com) with a production group of 50 people. And, museums will need to gain a better understanding of their virtual audiences and their needs.

Audience

The web audience holds mysteries for museum staff. Management rarely sees it. In some museums, web visitors exist more as a statistic than as a real entity. Yet virtual visitors are a growing and powerful entity. What does this audience want? What capacities does the audience have? What percentage of the audience has high bandwidth and the capability to quickly access images, video, and use programs like Shockwave and Quick Time Virtual Reality (QTVR)? How do visitors select museum web sites? These questions are difficult and time-consuming to answer. NareeWongse-Saint suggests that museums stop considering their physical and virtual audiences as parallel, unconnected universes. She recommends that museums remember their mission and goals and consider how the virtual audiences fit within these goals. Successful museum web sites have developed different segments of their sites for different audience capabilities. The United States Holocaust Memorial Museum <http://www.ushmm.org/> has a great educational web "exhibition" on the Voyage of the St. Louis. It developed this site with some features requiring high bandwidth because, as a staff member reported at the Museums and the Web 2000 conference in Minneapolis, staff determined that the primary audience for this "exhibit," American schools, have high bandwidth connections to the Internet. Just as in the physical museum, some virtual visitors want the simple tour while others desire in-depth intensive access and the ability to interact with staff. There will be classroom visitors and disabled visitors, scholars, and foreign visitors who do not understand English. There will be visitors who are expert at navigating

dense information resources and Internet novices. For more information about understanding visitors and tracking their needs, I recommend, "Tracking the Virtual Visitor: A Report from the National Gallery of Art," in the March/April 2000 issue of *Museum News.*[11]

Satisfying visitors' diverse needs with scarce staff resources and limited budgets is difficult. Visitors are not concerned with museum problems; they seek personal and efficient service. Visitors may support the museum when they have developed a relationship but to build the relationship, their needs must be met. Visitors may need to be able to find directions to the museum and information about opening hours easily if they are planning a visit, or, as is often the case, they will seek flexible access to content.

Content

The creation of digital content is expensive. Steve Puglia notes, "The Library of Congress's Digital Library/Ameritech Competition applicants requested an average of $19.00 per image which included an average cost for digital conversion of $6.60 per image and an average cost for cataloging, description, or indexing of $12.60 per image. The National Archives and Records Administration estimates its electronic access project digitizing costs as between $12.60 to $17.60 per image."[12] The acquisition of equipment—scanners, digital cameras, and digital videos—is only the tip of the iceberg. Outside the collections management system, the creation of digital content is usually project based—focused on presenting and highlighting special collections, done in conjunction with an exhibit, or undertaken as part of a special program. The long-term management and care needed to preserve the investment in digitization requires considerable planning. As the capabilities of digital cameras increase, museums can capture high-resolution images between 18 to 36 megabytes. Museums store these high-resolution images on CD-ROM, or DVD rather than online. One large museum has said that it has an archival collection of over 3,000 CD's. As museums incorporate digital imaging in conservation and movement tracking, and develop 3-D images for their web sites, they will need to consider mass storage solutions to enable the diverse systems throughout a museum to retrieve digital images on demand. Even low-resolution images (500-700 Kb), taken for conservation documentation purposes begin to add up. As the National Museum of the American Indian prepares for the opening of its new museum on the National Mall, conservators will review and assess some 5,000-7,000 objects for potential exhibition in the new building. At approximately 10 digital images apiece for conservation purposes, 5,000 objects require 50,000 digital images. It is challenging to manage digital assets. Subject matter description lacks easy-to-apply vocabulary standards. While controlled vocabularies are recommended, these are not available for all areas of interest.[13] The importance of managing rights and permissions for digital assets will continue to grow.

Copyright

Staff are disappointed occasionally to discover that the museum does not have the copyright for its own collections objects. Staff may also discover that when photographs and videos have been taken of events that the museum desires to present on the Web, the necessary releases to show the museum visitor looking at the object or the teacher interacting with her class at the museum were never prepared or signed. Obtaining the necessary clearances, verifying deed of gift records for the transfer of copyright, and acquiring copyright permissions take time. Museums need to incorporate new processes into field research, collections acquisitions, and public events to insure that materials will be available for use both in the museum and in the web environment. Museums may use a "fair use" defense for images for which they do not hold copyright. "Fair use permits certain good-faith uses that, in other contexts, would be an infringement. These include criticism, comment, news reporting, teaching, scholarship, and research."[14] The American Association of Museums text, *A Museum Guide to Copyright and Trademark*[15] provides an introduction to copyright and trademark issues. The *Guide* provides background in some of the new questions and issues that museum staff are increasingly called upon to consider and answer, e.g., "Can we put a link to your site on our site?" or web site domain name disputes.

Conclusion

The information economy provides an ocean of issues with which museums must contend. Institutional boundaries are blurring. Museums are forming partnerships with a variety of enterprises from the entertainment industry to universities. Content is in demand but collec-

tions information systems records are not enough. Nothing is as simple as it seems and there may be no single guide but that of practical common sense. A virtual wet suit or a life jacket may well be a useful thing to have on the desktop when it all seems too complicated or expensive. Perhaps a modicum of comfort might be drawn from the fact that museums everywhere, large and small, face the same challenges.

There are life rafts around—organizations such as the Consortium for the Computer Interchange of Museum Information (CIMI) offer important opportunities for research, testbeds, and trials that the rest of us could not afford on our own. The Museum Computer Network <http://www.mcn.edu> and Museum and Archives Informatics <http://www.archimuse.com> offer the ability to attend conferences and hear first-hand the experience of others. The National Initiative for Networked Cultural Heritage (NINCH) <http://www.ninch.org> offers an online platform for the cultural community to collaborate and learn from each other to advance the goal of an integrated, distributed body of cultural material accessible to all. When you are weary of surfing alone, jump on board. These organizations may not have all the answers, but swimming alone is rarely a good alternative.

Notes

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9 Darren Kornblut. "On-line Primetime—Promoting via Portals and other traffic building tricks," *Museums and the Web 2000.* Pittsburgh: Archives and Museum Informatics, 2000.

10 Press Release, April 17, 2000. "MoMA & Tate Gallery Announce Joint Commercial Web Venture," <http://www.moma.org/docs/press/2000/fF_PO02,c8458,.htm>.

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15 American Association of Museums. *A Museum Guide to Copyright and Trademark.* (Washington, DC: American Association of Museums, 1999).

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