



British Columbia
Museums Association
SINCE 1957

Best Practices Module

APPLIED TECHNOLOGIES

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Canadian
Heritage

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Content

Introduction	Page 2
Elements of Museum Technology	Page 3
Public Use	Page 4
Digital Imaging	Page 5
Digital Archiving	Page 6
Technology and Exhibits	Page 7
Technology and Learning	Page 8
Technology and Communications	Page 9
Technology and Conservation	Page 10
Technology and Museum Operation	Page 11
Resources	Page 12/13

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Introduction

The ubiquitous use of computers has propelled us into the electronic world at an increasingly rapid pace. This is no less true in the museum and gallery world than in any other sector of our society. The last number of years has seen the transformation of huge amounts of cultural material from their traditional forms into digital forms. As the spread of technologies continues, there is the potential for dramatic loss as those technologies evolve. This module will present material that allows for informed decision-making in the complex arena of applied technologies in the small to midsize museum / gallery.



Elements of Museum Technology

Collection Databases

Museums fulfill a significant aspect of their function by maintaining information about objects in their collections. Traditionally, this information was recorded in ledgers and card catalogues. Increasingly, all museums are relying on computers to establish databases of information. It is vitally important that choices about software take into account compatibility, so that collections' information may be shared with colleagues, researchers, students, and the general public.

Software

There are many "off the shelf" software packages designed for use in the museum. The Canadian Heritage Information Network (CHIN) has published a breakdown of museum collections software. See this information at:

http://www.chin.gc.ca/English/Collections_Management/Software_Review/index.html

Management

CHIN has an on-line training course that helps to develop a plan and manage a project to choosing and implementing collections management software. See:

http://www.chin.gc.ca/English/Collections_Management/Software_Selection/index.html

Standards

There is a confusing array of types of standards designed to manage museum collections information. These "standards", which range from precise technical standards to general guidelines, enable museum data to be efficiently and consistently indexed, sorted, retrieved and shared, both in automated and paper-based systems. A thorough analysis and description of these varying standards may be found at CHIN's site:

<http://www.chin.gc.ca/English/Standards/introduction.html>



Public Use

Museums have a responsibility to meet the needs of the public in providing access to collections information. Information technology can maximize the museum's abilities in this regard.

Websites

Museums, through their collections, are in a unique position to provide an astonishing depth of online content. After museum collections are documented digitally, web technology allows museums great freedom to display digital documentation of collections. See a model at: <http://aggy.bc.ca/collection/>

Portals

Museum administrators are seeing the power of working together in cyberspace. Museums should collaborate to create online museum communities. Benefits of collaboration can include access to a greater audience, sharing of limited resources, minimizing risk through collective decision making and sharing expertise.

Collaboration can lead to critical online mass. When this happens, web users looking for sources of deep content will turn to museum portals as a prime resource. See: <http://www.amico.org/>



Digital Imaging

The technology of photography has undergone a radical transformation with the appearance of digital cameras. Traditional film formats are now disappearing from the market. Digital imaging is replacing the making of negatives and transparencies.

Cameras

The choice of a digital camera should depend on an analysis of need. Cameras now come with complex features, interchangeable lenses and in every price range. Regardless of choice, the camera must have a capability of 4 mega pixels of resolution or greater to ensure good quality digital images. An easy way to analyze needs for a digital camera may be found at the “*Find the Best Camera For You*” section at: <http://www.imaging-resource.com/>

Scanners

Like digital cameras, fairly sophisticated scanners are now readily available. Again, analysis of need should determine which scanner to purchase. For example, does the scanner need to be used for documents, transparencies and negatives? Can it “batch” scan? Regardless of choice, the speed of the scanner should be at least 100 mb/minute (16 Bit).

Conventions

There is a confusing number of conventions that have been developed over the years. These conventions refer to the file format through which the digital image is saved or stored. They all have varying strengths or weaknesses. It is vitally important to decide on procedures and formats before starting a major digitization project. See the glossary for more information on conventions.

Training

Museum staff must undertake training before embarking on a project to digitize the museum collections. The Illinois Digitization Institute offers an online course that covers all the aspects from metadata tags to accessibility online and archiving issues. See: <http://images.library.uiuc.edu/projects/IDI/abstract.htm>



Digital Archiving

Digital archiving is usually defined as the long-term storage, preservation, and access to information that is "born digital," that is created and disseminated primarily in electronic form or for which the digital version is considered to be the primary archive.

The explosion in the creation and dissemination of digital objects by authors, publishers, corporations, governments, librarians, archivists and museum curators illustrates the speed and ease of short-term dissemination. Only more recently has there emerged a concomitant concern for the long-term preservation of digital information. Museums must devote resources to the issue to protect themselves from the potential loss of their digital content. See an authoritative description of issues and recommendations of Best Practice in Digital Archiving is at:

<http://www.dlib.org/dlib/january00/01hodge.html>

Disc

There is a wide variety of disc format available for high-density archiving of digital content. Regardless of format chosen, the museum must undertake a routine backup of all data. As well, the museum must be vigilant about migrating data to new media as older ones become threatened with obsolescence. See the glossary for descriptions of various formats.

Video

Video footage can be digitized. This in turn allows the footage to be digitally catalogued, preserves the video quality of historical clips and drastically reduces the amount of space needed for storage. A digital archiving system can be available through a video-on-demand (VOD) system, thus allowing visitors easy access to historically valuable videos.

Audio

Audiotapes can be digitized. This provides for longer-term survivability and greater access to the content. Thus, First Nations language projects, oral histories, and other historically significant audio material can be digitally catalogued, preserved, and made available to the public through on demand systems while being preserved for future generations.



Technology and Exhibits

Museums now have an opportunity to extend the lifetime, reach and nature of an exhibition by the use of technology within the exhibition itself or by placing images of the exhibition on the web. As well, the museum can develop virtual exhibits that are only available online.

In House

The affordability of various technologies allows even small museums with limited means an opportunity to augment their exhibitions with an added richness of content.

Acoustiguides

Acoustiguides allow for in-depth access to content without the risk of museum fatigue from reading pages of label copy.

See: <http://www.acoustiguide.com/>

Wireless handheld devices

Wireless handheld devices offer great potential for inspiring more in-depth learning and reflection about exhibitions. This technology can expand the boundaries of the museum visit for the key audiences, including activities taking place before arrival at the museum (e.g., using a computer to plan a visit or provide orientation and background), during the visit (providing additional information and context for the exhibits and suggesting new avenues for experimentation), and after the visit (allowing additional reflection and analysis).

See: <http://www.exploratorium.edu/guidebook/index.html> and http://www.chin.gc.ca/English/Digital_Content/Tip_Sheets/Pda/tip_sheet13.html

Multi media components

Multi media components in exhibitions can incorporate audio, video and computer kiosks to provide ever-deeper levels of sophisticated content for the visitor with more than a passing interest in an exhibition's thesis.

Virtual

There is a growing trend towards virtual exhibits available on-line. This approach provides a ready advantage in sharing the museum's knowledge with a potential audience "beyond the four walls." The Virtual Museum of Canada Investment Program provides funds for successful applicants wishing to develop a virtual exhibition.

See: <http://www.chin.gc.ca/English/index.html>



Technology and Learning

Museums can use the web as a cost-effective means of presenting a full range of in-depth educational materials to a broad public. The web allows for the administration of education programs with technology reducing costs, as there is no paper to circulate and changes can be made to information quickly and without reprinting.

In House

Traditionally, museum staff provided access to the museum collection by developing displays and writing interpretive labels. Today, museum staff recognize that the process of learning involves an interaction between the learner and the object within a particular context. The context constitutes the physical space, the mode of communication, the accompanying or surrounding people and the opportunity to reflect and interact. Technologies may be deployed to facilitate this new understanding.

See: <http://www.kcl.ac.uk/ip/paulluff/edsymposium/King.pdf>

Interactive technologies can be deployed in the museum and may include computer kiosks and hand held devices. As well, in house exhibits can incorporate elements that will encourage the visitor to go online when they return home to continue their learning experience.

In the Schools

Technology may be used to extend the learning experience beyond the museum building via websites, software and online databases. Working with teachers, museum staff can develop curriculum based educational programs designed for each grade's requirements and abilities.

Lifelong

Today, museums have an unparalleled opportunity to meet the needs of lifelong learners. Through the use of technology, the museum can provide access to collections and content in a meaningful manner that meets the differing needs of a broad public. For example, a user's contribution section on a museum website will encourage repeat visits to a museum's website if the visitor feels they are making useful contributions to the ongoing research function of the museum.



Technology and Communications

The revolution in technology and the continuing convergence of various technological innovations has had its greatest impact in the realm of communications. The ramifications of new and more efficient ways of communicating play out in every area of running a museum – large or small.

Management

The new uses of information technology raise issues for roles and organizational structures in museums. The challenge for management in museums is to respond to the new realities of how staff functions evolve as we discover new ways to respond to the demands of museum users.

See: http://www.mda.org.uk/mti_rep4.htm#4

Membership

There are numerous “off the shelf” software packages available for managing the museum’s membership requirements. The museum should undertake a review to determine which software best suits their needs. Ebase, for example, is a complete non-profit database solution and it is free. With its’ comprehensive feature set, ebase can help manage donors, prospects, volunteers, activists, email lists and more.

See: <http://www.ebase.org/>

Fundraising

DonorPerfect, Exceed!, Convio, eTapestry and Raiser's Edge are good fundraising packages. Depending on the museum’s size and technological abilities, one of these solutions will work. A good comparison between all these programs and Ebase may be made at the following:

<http://www.ebase.org/about/featurecomp.lasso>

The primary benefit of fundraising software is the centralization of data capture about your supportive audience. As well, tracking a donor’s past record of giving allows for a more timely and targeted approach to wooing the donor. Finally, a database of the museum’s membership, donors and other important individuals and businesses provides for many economies in the use of staff and volunteer time.

Other

Museum management and staff should avail themselves of the focused Listserves, electronic bulletin boards, and electronic newsletters that have emerged in the past few years. Staying abreast of the rapidly changing technological environment can be accomplished via these means.

See: bcmuse-l@museumsassn.bc.ca

<http://www.finalchapter.com/museum-l-faq/>



Technology and Conservation

There are significant concerns emerging about the long-term stability of storage media for digital content. Risks associated with storage media include actual loss of the media, physical deterioration and data corruption, loss of readability through software change or obsolescence. It is important to remember that nothing lasts forever. All storage media have a shelf life that is dictated by the emergence of new technologies and the actual physical deterioration of the media itself.

Museums must avail themselves of the latest information available and take steps to ensure that valuable digital content is migrated to new storage media as they replace older formats.

A useful site dealing with best practices in digital archiving may be found at:
<http://www.dlib.org/dlib/january00/01hodge.html>



Technology and Museum Operation

Even the smallest museums with only one or two staff members must avail themselves of the technology that is readily available and increasingly affordable if they are to conduct themselves in an efficient and professional manner.

Hardware

A big, fast computer and an integrated printer with fax capabilities can be purchased for less than \$2000. Assistance with hardware technical terminology may be found at:

<http://www.webopedia.com/Hardware/>

To assess needs and find the right system to meet those needs within the budget see the following: http://www.pueblo.gsa.gov/cic_text/misc/buy-computer/buycomp.htm

To go beyond the basics and learn about setting up wireless networks or installing firewalls and other more technical matters, the following website offers archived programs from the Dotto TV program: <http://www.dottotv.com/>

Software

There is a software package to meet just about every need that one can imagine, from word-processing such as Microsoft Word and financial management like Excel. Very important, too, is virus protection if the museum's computer system is going to be online. Two popular virus protection and computer security websites are: <http://www.symantec.com/index.htm>



Resources

A useful site that specializes in definitions dealing with technology may be found at:

<http://www.webopedia.com/>

The Canadian Heritage Information Network (CHIN) provides a great deal of useful information with regard to the use of technology in museums:

<http://www.chin.gc.ca/English/>

International Council of Museums (ICOM) provides a forum for discussing and providing advice on the application of documentation standards, and information and communication technologies, for the gathering, management and sharing of the knowledge carried in heritage collections: <http://www.willpowerinfo.myby.co.uk/cidoc/cidoc0.htm>

The Museum Computer Network is a non-profit organization of professionals dedicated to fostering the cultural aims of museums through the use of computer technologies: <http://www.mcn.edu/>

American Association of Museums resources: <http://www.aam-us.org/>

The Technical Advisory Service for Images advice on digital creation, storage and delivery of image-related information: <http://www.tasi.ac.uk>

UKOLN is a national focus of expertise in digital information management. It provides policy, research and awareness services to the UK library, information and cultural heritage services but is useful beyond its stated audience:

<http://www.ukoln.ac.uk>

NOF-digitize Technological Advisory Service provides technical advisory support for digitization projects: <http://www.ukoln.ac.uk/nof/support>

Comparisons between three museum Web sites examine how each seeks to better engage and influence teacher learning:

<http://www.archimuse.com/mw2002/papers/korteweg/korteweg.html>

Still useful essay by Pam Dixon on museums and the web:

<http://www.pamdixon.com/webmuse.htm>

Very good site dealing with technology in museums to augment learning:

<http://www.kcl.ac.uk/ip/paulluff/edsymposium/King.pdf>

The National Research Council's efforts with regard to 3-D imaging technology for museums:

http://iit-iti.nrc-cnrc.gc.ca/publications/nrc-44966_e.html

The Educational Technology Journal has a useful site for teaching:

<http://www.fno.org/index.html>



Resources cont'd...

Very useful site about technology in museums: http://www.mda.org.uk/mti_rep1.htm

Video archiving in museums:

http://www.optibase.com/html/solutions/application_stories/Digital_Archiving/Video_Archiving_Technology_in_Museums.html

Useful and interesting articles about technology in museums:

<http://portal.acm.org/citation.cfm?id=642219.642231>

Good site about developing technology in the museum:

<http://www.mla.gov.uk/documents/ictstrat.pdf>

Gail Hobb on archiving: <http://www.dlib.org/dlib/january00/01hodge.html>

Digitization and Archives (Canadian Council of Archives - Preservation Committee):

http://www.cdncouncilarchives.ca/digitization_en.pdf

