Brokering Access to Heritage Information
CHIN's Strategy for the 90's

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Introduction

Canadian museums are no strangers to networking. As early as the 1970's, many museums were participating in a networked environment through their membership in the Canadian Heritage Information Network (CHIN). This early environment was highly centralized and limited in functionality, but nonetheless was dedicated to the principle of sharing electronic information. In the 1980's, the capacity of the network increased, with the diversification of available information and the addition of other functions such as collections management and electronic mail. As well, during this period, the number of participating museums grew steadily. By the early 1990's over 600 institutions in more than 22 countries throughout the world were linked to each other. In 1993, CHIN established its first tentative links to the Internet and, in October of this year, completed its migration to the Internet environment.

This historical commitment to cooperative networking reflects the long term belief of Canadian museums in the importance of technology in the management of collections, as well as a growing desire to reach broader audiences in new ways. Since 1972, CHIN has provided the community with technical support and advisory services. Through a collegial process, it has worked to develop standards and raise the profile of technology within museums. This paper will explore the fundamental changes resulting from CHIN's strategic shift to the Internet environment. These changes will significantly alter both the way in which CHIN interacts with its clients and also change the ways in which Canadian museums interact with their public and with each other.

Background

In 1972, when the National Inventory Programme (CHIN's predecessor) was created, the primary challenge institutions faced in information management was the basic documentation of collections. The National Inventory Programme was established as part of Canada's first comprehensive museums policy. This development was, at least in part, a response to various UNESCO Conventions dealing with the protection of cultural property.

The National Inventory Programme had two primary objectives: to foster the documentation of museum collections and, as the programme title suggests, to create a national inventory of Canadian museum collections. The original focus was the establishment of a set of recording standards. These enabled the accurate identification and description of objects together with a minimal amount of information related to the management of the collections such as acquisition history and location within an institution. To create the National Inventory, some museums submitted a sub-set of information in paper form to the Programme office where it was then entered into a computer. Other museums entered data locally by means of dumb terminals. A series of disciplinary data bases were available for retrieval purposes.

A major evaluation of the Programme in 1981 revealed some fundamental drawbacks to this initial approach. It was recognized that museums required a tool that would allow them to manage their collections in a more dynamic way. As a result of the evaluation, the Programme was redesigned and transformed in 1982 to the Canadian Heritage Information Network. Given the high costs of computing equipment at the time, well beyond the reach of most museums, a central mainframe was acquired on which museums were allocated work space for their individual collections management activities. Collections management software was developed and certain fields were identified for the National Inventory which would be accessible by all institutions. To link institutions to the central mainframe, the national telecommunications network was also expanded.

Over the next decade, additional services were added which took advantage of the investment in both the network and the mainframe, including an electronic mail service and a series of electronic reference information services. The most notable of the latter is the Conservation Information Network which CHIN developed in partnership with the Canadian Conservation Institute, the Getty Conservation Institute, the Smithsonian Conservation Analytical Laboratory, the International Council for the Preservation and Restoration of Cultural Property (ICCROM), the International Council on Monuments and Sites (ICOMOS) and the International Council of Museums (ICOM). The creation of the Conservation Information Network gave rise to the addition of an international component of the network, allowing access to information services by institutions throughout the world.

Today the National Inventories consist of three major databases, one each for humanities, natural sciences and archaeology. These databases contain information on over 25 million objects and 80,000 archaeological sites. Each entry contains approximately 50 fields of information out of the approximately 600 fields available to the institutions in their individual work spaces. To date, the national inventories have been primarily used by institutions researching their own collections in relation to the collections of other institutions. For the most part, public access has been mediated by museum professionals searching the databases and interpreting the results.

New Directions

In May of this year, CHIN launched its new mission, beginning its transformation from a series of services primarily oriented to collections management to a new, broader range of services designed to facilitate access to the rich information resources held within heritage institutions.

The impetus for change came from a number of factors. The first factor was the exciting opportunity presented by new database, networking and imaging technologies. Second, activities such as collections management that were once performed centrally could now be performed locally in an effective and cost-efficient way. Third, an opportunity was presented by the federal Program Review aimed at rethinking the business of Canadian government. A final factor was a seminal series of brainstorming sessions held with Canadian museum directors in February and March 1995.

During these brainstorming sessions, the museum directors spoke of the many challenges facing them in an era of rapid societal change. Decreased funding, competition for shrinking leisure time, an increasingly diverse and segmented public, all contribute to an environment where the perceived value of traditional cultural institutions is under constant challenge. At the same time, the rapid pace of technological change and the associated capacity to exchange information globally provides museums with the opportunity to reach new audiences. As part of reaching new audiences, directors recognized the fundamental necessity of developing quality content, content that could be reused, shared and even migrated to future technological environments.

The directors envisioned an environment in which museums create rich information resources electronically available to the public. At the same time, the directors identified the National Inventories and other kinds of collective directory services as important tools in enabling effective access to the more comprehensive local information. While each museum has its own distinct identity and wishes to be individually visible to the public, the Directors also identified the need for a collective presence in the evolving global networks as a means of enhancing individual visibility. In addition, to reach certain audiences, such as schools, through the development of curriculum materials, the Directors recognized that they would need to work cooperatively, as well as with specialists, to meet audience requirements.

As a result of these brainstorming sessions, the Programme Review and ongoing discussions with clients, CHIN has decided to focus its activities on those aspects of heritage information which require collective action rather than those activities more successfully accomplished by individual institutions.

CHIN's new mission is as follows:

Broker effective access to Canadian and international heritage information for public education and enjoyment and for the collective benefit of Canadian museums.

By working with the heritage community and other relevant parties to:

1) promote the creation, management, dissemination and use of heritage information;

2) articulate and promote standards and guidelines which will enable the creation and exchange of coherent information resources in a distributed environment;

3) offer integrated access to distributed heritage information;

4) ensure the development and effective use of technologies appropriate to the specific needs of the community;

5) represent Canadian museums in the development of national and international policies and programs related to access to heritage information.

CHIN on the Internet

CHIN's long term vision is the creation, in association with museums and other heritage institutions, of a dynamic, highly distributed and multi-dimensional electronic information resource, accessible through standard, convivial user interfaces by a wide variety of users. Increasingly, CHIN is turning to the Internet to provide the foundation for this environment.CHIN's current focus on Internet services has two dimensions: first, the conversion of CHIN's own technology base; and second, the encouragement of an Internet capacity within museums.

The first step in converting CHIN's reference information, including the National Inventories, to a more sophisticated database environment has been completed over the past summer. Thumbnail images will be added in accordance with availability.

CHIN's hardware is based on two SUN servers (Model 20) using the Solaris (UNIX) operating system. A Webserver, with 64 MB memory and 5 GB disc storage, provides access to the CHIN Web pages. A database server, with 96 MB memory and 10 GB disc storage, provides access to the National Inventories and other reference information.

The software uses the well-proven BASISplus relational database management system capable of handling multiple data formats, including structured text, unstructured text, and images. Access to the BASISplus database through the Internet is provided by the BASIS WEBserver software, which provides a means of searching a database through interactive search forms to retrieve data. This technology provides a user-friendly interface to access database information through the Internet using standard WEB browsers (such as, Netscape and Mosaic) requiring little or no training. It also provides

access to the standard Internet services such as TELNET, WWW, FTP, e-mail, newsgroups, and listservs.

As an adjunct to its own internal technology change, CHIN is assisting Canadian museums to select collections management software and to migrate their data to their local environment. CHIN also plans to stimulate museum use of the Internet by providing institutions which contribute to its National Inventories with an Internet account and encouraging the training of museum staff. A more important stimulus may be be offered by its plans to participate in the development of a suite of Internet utilities. These utilities will allow the cost-effective preparation of multimedia information from diverse sources in formats retrievable using standard Internet applications. They will also assist in both new development and retrospective digitization which includes meta-level documentation necessary for effective retrieval. This integration of newly emerging tools, standards and information structures will enable museums to construct the framework for managing and presenting their information resources in a distributed architecture without the need for significant staff training. Funding has been sought through CANARIE, a federal initiative aimed at the development of the Canadian Information Highway.

Internet Content:

Museums are both producers and consumers of information. In museums' ongoing efforts to disseminate information about themselves and their objects, CHIN can play the role of a value-added gateway. Within museums, object-related information will now be available to different functional areas, such as public programming, education, publications, library and curatorial departments. This will provide museums with the opportunity to enrich their information and to use it for purposes other than collections management.

Index to Canadian Heritage

In consultation with museums, CHIN is developing the **Index to Canadian Heritage** as the electronic doorway to heritage information. The long term goal of the Index is to provide information on museums and their collections and point the way to richer interpretive and contextual material located locally. The contents of the Index can be broadly divided into two areas: one, a guide to Canadian museums, containing general information on the nature of individual museum's holdings (the "scope" of collections), and information on the institution, its collection, its hours of operation, and the services it provides; and two, resources such as the National Inventories and related authorities.

The **Guide to Canadian Museums**, now under development, contains information on Canadian museums in the form of home pages, and includes general information about their collections, events, and activities. Where available, links are made to home pages of provincial museum associations, regional networks servers and other museum home pages. Scope of collections information will be

included, based on the American Association of State and Local History's Common Agenda Project and on a similar initiative by the New Hampshire Historical Society. These institutional profiles can be contributed by all Canadian museums regardless of the level of automation of their object records. Those institutions which have computerized their object records are linked to the National Inventory records of all contributing museums.

The **National Inventories** contain records of objects and specimens in the collections of contributing museums. Under CHIN's new technical environment, they also have the capacity to store thumbnail images. As museums undertake digitization projects, these images can be added to their records. Efforts are now underway to enhance the content of the **National Inventories** (Humanities, Natural Sciences, and Archaeological Sites) by adding additional fields of information. Other databases, such as the National Gallery of Canada's **Artists in Canada** database will be linked to the **National Inventories** to enhance access and to provide a richer information resource.

Other resources are also available through CHIN although not forming part of the Index. One example of these are the Reference Databases. These databases contain topics of interest to the heritage community and are often of international origin. For example, in the bibliographic databases, one finds a broad range of subjects, such as heritage law, heritage organizations, museology, and zoological specimens. Users will also have access to authority databases, such as CHIN's data dictionaries, and the Getty Art History Information Program's Art and Architecture Thesaurus (AAT). In addition, CHIN's Web site links to other significant heritage sites or indexes outside Canada, such as AHIP's home page, the CIDOC Database Survey and the World-Wide Web Virtual Library Museums. Although CHIN is a Canadian programme, it is very much a member of the international heritage community and a strong believer in the international nature of information. During last year's brainstorming sessions, the directors were adamant about the need to reach out to other countries.

Also during these sessions, the directors raised the need to develop new and renewable sources of revenue. In an effort to provide assistance in this area, CHIN has proposed that certain of the information resources located on its Web site, such as the National Inventories and reference databases, be available to the broad public by subscription only. Museums contributing to these information resources will receive the lion's share of any revenues. Canadian member museums would, of course, have free access to all information.

Issues

Historically, CHIN has focussed on maintaining a highly structured central information repository. The move to a dynamic, distributed information environment presents a number of challenges. One challenge is the maintenance of the National Inventories in an environment where information resides

locally. Practical issues include standards, data import and export procedures and questions of which information should be maintained locally and which centrally.

Beyond these immediate concerns is the broader question of museum information in general. To date, electronic museum information has consisted largely of cataloguing information. Other resources exist, such as bibliographies and authorities, but these are few in number and generally unavailable in a networked environment. What is largely lacking is the contextual information that will provide relevance to the object information residing in museum catalogues. Museums need to add value to collections information by providing descriptions of the associated people, events, and organizations - the context. Contextual information provides the scale and relevance of the object within the user's perspective. Before this can be done effectively, however, there is a need for a better understanding of that user. Who will visit the digital museum? What types of information will be required? Questions related to how people use information and the varying points of view will need to be answered and applied. AHIP's "Points of View" project which has been incorporated into Project CHIO, a CIMI Initiative, is an important first step, but further research remains to be done.

The creation of contextual information also raises new questions about the information standards necessary to enable effective access and the technical standards essential for the exchange of information across diverse environments. CHIN is committed to CIMI (Consortium for the Computer Interchange of Museum Information) and its efforts to develop standards for diverse information types based on Standard Generalized Markup Language (SGML) and exchange protocols for diverse database structures, particularly Z39.50. These standards provide the potential ability to search across a multiplicy of databases in different environments. If they are to succeed, however, solutions must be practical and within the reach of institutions to implement.

Efforts will also be made to identify additional utilities such as specialized thesauri or other knowledge bases which can assist effective retrieval for a variety of users. Some of these knowledge bases are well known to museums; for example, the Art and Architecture Thesaurus, but many others exist in other professions which may be of value. Libraries and archives are a natural source for complementary contextual information, and it is clear that museums can benefit by maintaining closer ties with these organizations, but information that is somewhat further afield, such as census or geophysical information, can also provide value. One challenge faced by CHIN is to apply some of these knowledge bases as online search tools for certain fields in the National Inventories. For example, terms from the Materials hierarchy of the Art and Architecture Thesaurus will search for like terms in the Material field in the Nationals.

A further challenge lies in the actual creation of new information resources, linking object information with the wealth of contextual information now languishing in files and archives or locked in print or other media. Funding for museums is drying up (at least in Canada) and the return on the

investment required to create electronic information is unclear. Utilities such as those proposed to Canarie may assist in reducing the costs of data preparation. CHIN's plan to return revenue, raised through subscriptions, to museums contributing information may also provide some small assistance. It is clear, however, that museums will benefit by working together. Consortial activities can assist museums in sharing expertise, in developing products for new markets such as the tourism or educational field, in promoting and selling their products and in attracting new visitors. The sharing of quality information resources will also help to create the economic and political climate that will sustain this activity.

Conclusion

Over the past twenty years, Canadian museums have invested heavily in automating their collections information. To a large extent, this investment was the result of a need for increased efficiency and public accountability, but it also grew from a desire to create a collective public resource. The Internet provides museums with the opportunity to reach new audiences in new ways. The strategic evolution of CHIN from a centralized service bureau to a broker of distributed heritage information reflects a belief in the important role museums can play in offerring the public a better understanding of their cultural heritage. The challenge is enormous and the future uncertain, but only through cooperation will museums fully benefit from the potential of the Digital Revolution.