

# Producing Online Heritage Projects

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# Foreword

The publication of *Producing Online Heritage Projects* is a fitting way to celebrate the 30<sup>th</sup> anniversary of the Canadian Heritage Information Network (CHIN) because this handbook is an important milestone for CHIN and its more than 700 member museums, galleries and heritage institutions. It is our way of sharing with heritage professionals the valuable experience we have acquired over the past seven years in producing online heritage products and virtual exhibits with our numerous museum partners.

It all began with *Christmas Traditions in France and in Canada* (1995). This popular virtual exhibit, developed with museums in Canada and France in partnership with CHIN as executive producer, continues to attract large numbers of visitors every holiday season. *In the Countries of the Francophonie* (1997) was another Web production to which many partners from the international heritage community contributed. It was followed by the award-winning *Haida Spirits of the Sea*, which was launched simultaneously on the Web and at the Canada Pavilion at Expo 98 in Lisbon.

These early achievements lead to dozens of virtual exhibits produced collaboratively with Canadian and international heritage institutions. Accessible through the *Virtual Museum of Canada* (VMC) gateway at [www.virtualmuseum.ca](http://www.virtualmuseum.ca), the extraordinary multimedia content produced by Canadian museums attracts new online audiences from around the world. With more than 3 million visits from 140 countries in its first year of existence, the VMC is now established as one of the world's premier heritage gateways and is helping to enhance the profile of Canadian museums and their collections.

The *VMC Investment Program* was established in 2001 to help heritage institutions across Canada produce content for the Web. As new productions are featured and information added to sections such as *VMC Exhibits, Fun and Games, Find a Museum* and *Teachers' Centre*, the VMC's worldwide public audience is increasing steadily.

We hope that this handbook will prove useful to the many heritage professionals across the country who are busy developing exciting online content, and help them reap the enormous benefits available from Web-based education and promotion.

CHIN's new focus on skills development for the creation, management and presentation of digital content is targeted at building the heritage community's capacity. CHIN also remains active in getting smaller museums directly involved in the production process and encouraging all heritage institutions to work together while staying abreast of the latest technology developments and their implications for heritage and the Web.

It is our belief that *Producing Online Heritage Projects* will encourage heritage institutions to seize another major opportunity to advance the vision first articulated 30 years ago. If you are just beginning to think about using the online medium, this handbook is sure to provide you with useful guidance and helpful information. Even if you are a veteran of Internet production, specific sections of the handbook will surprise you with new approaches and useful bits of advice from knowledgeable colleagues. And please tell us about your own experiences as you work with the handbook. Your input and feedback will help us add new material in future editions, for the benefit of all heritage professionals.

As we continue our journey together, CHIN would like to pay tribute to its members, and to the spectacular results of their work, which we will continue to promote through initiatives such as the *Virtual Museum of Canada*.

Danielle Boily, Manager  
Public Programs  
Canadian Heritage Information Network (CHIN)  
*Virtual Museum of Canada* (VMC)

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**Figure 1: *Producing Online Heritage Projects***



As shown in this diagram, *Producing Online Heritage Projects* provides an overview of how to plan, develop, launch and maintain online content.

# Introduction

## Role of the Project Manager

Project management is as important to the successful development and maintenance of an online heritage product as it is to the many other projects and activities undertaken by museums and galleries.

Your role in managing all aspects of a project, be it a virtual exhibition or the restoration of an historic structure, is critical to its success. You need to strike a balance among several project activities and components, including:

- **defining** the project
- **determining** a budget and **organizing** other resources that will be required
- **establishing** a schedule of measurable tasks and milestones
- **building** a team
- **leading** the team through every phase of the project's development to the successful launch
- **keeping** the project **on budget** and **on schedule**
- **testing** at reasonable intervals for quality and performance
- **planning** the product's launch and maintenance

These activities require communication, problem solving and people skills, as well as foresight to anticipate difficulties and changes. They are basic or general tasks that you, the project manager, can repeat many times throughout the project as it evolves and as new issues and situations arise. You do not simply complete each task and then move on to the next, but rather continually revisit decisions and plans and fine-tune them throughout the course of the project.

This handbook is intended to assist you as you perform the critical management function, and guide you through the phases of producing your online heritage project.

## About this Handbook

*Producing Online Heritage Projects* provides you with an overview of how to plan, develop, launch and maintain online content. Written by a team of heritage professionals, the handbook is the result of collective expertise, merging various voices from the Canadian heritage and museum community. Whether you want to promote your Web product online, provide educational and fun programs for your stakeholders, sell museum shop items, or display a dynamic virtual exhibition based on your collections, this handbook can provide you with a strong foundation for your venture.

Many of the activities involved in producing online heritage content do not unfold in a linear or chronological fashion. Tasks instead, often overlap, and are worked on simultaneously and with a different level of emphasis, throughout the phases of the project's development. The handbook is, however, organized into the following sections and topics for ease of reading and understanding:

### Section 1—Project Planning

This section guides you, the project manager, as you think through, define and plan each component of the project that lies ahead. From crafting the concept and establishing a schedule and budget, to building a team, this handbook can help you crystallize issues, and marshal the resources and strategies to address them.

### Section 2—Project Development

This section of the handbook covers the actual production phase. So roll up your sleeves! By now, you and your team will be deeply involved in creating story lines, and selecting and assembling materials. Meeting the project goals and your audience's needs also requires not only that you recognize the opportunities and limitations of online communication and understand multimedia, but also the technical

possibilities—the technology options and choices available to enhance your online product. Finally, you need to know how to gather information and evaluate your project throughout the development process.

### **Section 3—Ready to Launch**

Here you will find useful ideas and further information to help you ensure that your online heritage resource receives all the audience attention it deserves.

### **Section 4—Product Maintenance**

Congratulations! Your online heritage product is live on the Internet! The handbook concludes with an overview of tasks and issues to consider when updating and caring for your online product.

### **Appendix—Project Manager’s Tools and Templates**

Checklists, questionnaires and a template to help you plan and manage.

### **Glossary**

Definitions of technical terms used in the handbook.

### **Additional Resources**

If you want to pursue a handbook topic in greater depth, this list will get you started as you search for more information.

This manual is also available as an Internet publication at [www.chin.gc.ca](http://www.chin.gc.ca).

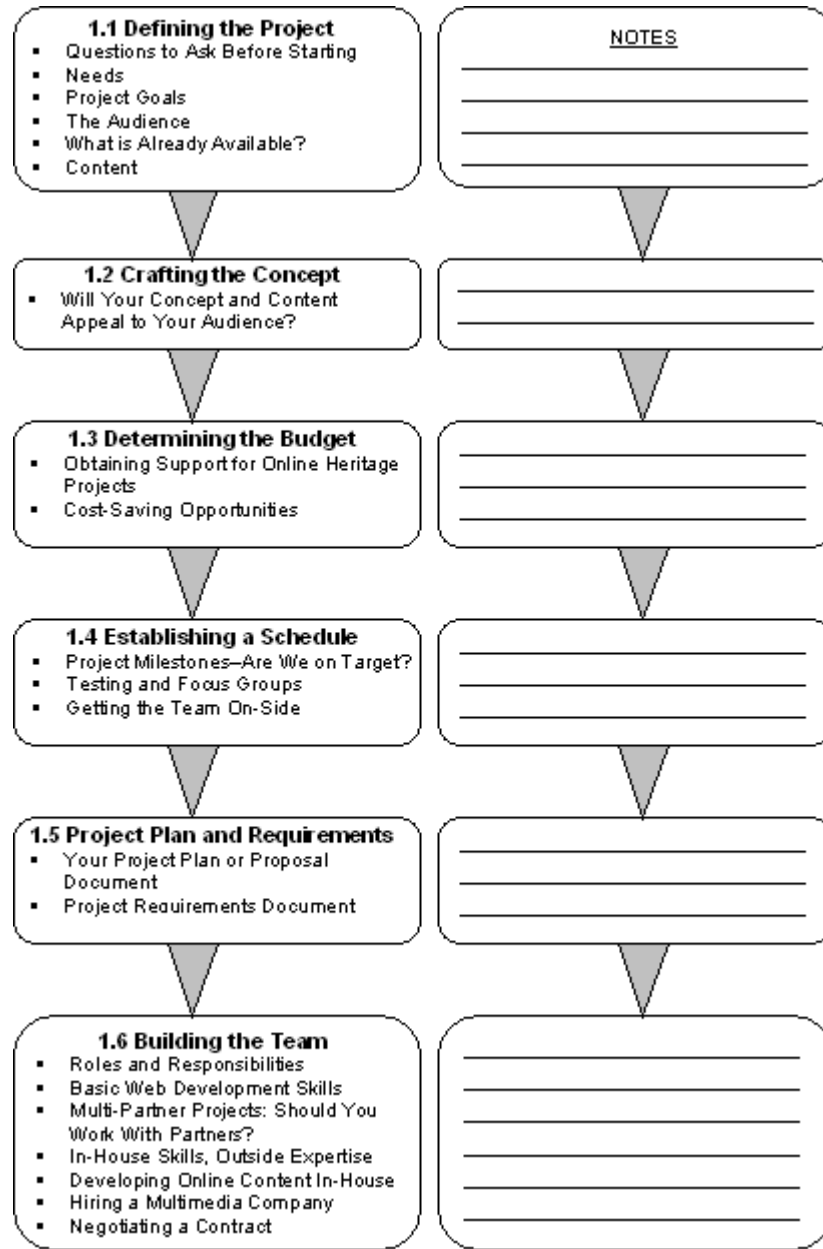


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**Figure 2: Project Planning**



The key steps of Project Planning.

# 1. Project Planning

## 1.1 Defining the Project

There are many issues to consider before beginning a project to develop online heritage content. Taking the time needed to establish and follow a plan, and then evaluating and modifying it as required throughout the development process, is definitely worth the trouble. The more focused your online product is in meeting the needs of your target audience(s), the more attractive it becomes to visitors and surfers. Consider your museum's mandate and set standards to guide the development of your online project. Think about the time and resources required to successfully launch and maintain the product, and where it fits within your institution's mandate.

**A business plan approach is essential to assess issues such as:**

- budget requirements
- target audience(s) and market(s)
- benefits and drawbacks
- scope
- timeline
- shelf-life: how long your online content will be current and useable
- maintenance requirements
- functions: education, e-commerce, promotion

### Questions to Ask Before Starting

**Before you start, you should ask yourself these questions:**

- Why do you want to create online content?
- What results do you hope to achieve?
- How will you measure success?
- Do you want to educate, inform or call to action?
- Do you want to sell products online?
- Is an online product the best option for your project?
- Do you understand the capabilities of new technology?

### Needs

Your museum's requirements and objectives should be spelled out at the start of the project to help shape the project goals and identify the target audience(s). Consider the needs you are attempting to meet and the goals you hope to achieve. Will the online content you create help the museum fulfil its mandate? Will the project help it meet the needs of its audience(s)? Will the project serve the various communities of interest and deepen public understanding of a specific topic?

Consult your colleagues and prepare a list of needs the online project can meet. Alert your museum board to the project and ask board members for input. If your institution is affiliated with the municipal, provincial or federal government, ascertain their needs and how your online project can address them.

### Project Goals

The goals you set for your project will need to be kept in mind throughout the development process. They will shape many of your decisions and affect the overall direction of the project.

**Example of a main project goal:**

- The goal is to enhance the visibility of our institution and increase public understanding of our heritage by informing the community about the importance of the preservation and stewardship of our pioneer past.

**Examples of measurable project goals:**

- Have 20% of the town's grade five teachers use the virtual exhibition as a resource tool in the first year.
- Provide guidelines for community users to identify "found" artefacts.
- Inform the community and attract 5% more visitors to our facility's annual Heritage Days event.
- Train staff to enable them to develop online content within 6 months.

**The Audience**

To plan online cultural content that meets audience needs effectively, you must first identify and understand the target audience you plan to serve. Is your audience defined by:

- region?
- age?
- community of interest?
- language?
- education?
- learning styles?

Your target audience may have a combination of characteristics. It is important to remember that choosing one audience does not imply excluding another. For example, a product developed for children may also appeal to their parents. Once you have identified your target audience(s), it is time to learn more about them.

Because there is so much information, it is best to have an idea of what in particular you are looking for, such as the number of people between the ages of 13 and 17 living in Saskatchewan. You can visit a number of commercial and public sector research sites to access information about your target audience(s). Many sites sell comprehensive research reports, but these are expensive; however, they may also make some executive summaries and other information available free of charge. For example, Statistics Canada's Web site<sup>1</sup> has lots of information about Canadians, and much of it is free.

**Questions to ask when researching a target audience:**

- How does your audience use the Internet?
- Does your audience access the Internet at home, at work, at school, at an Internet café?
- How large is the group?
- Is the audience local, national or international in nature?

The profile of your target audience(s) will have an impact on many of your decisions about design, writing style and content.

**What is Already Available?**

Properly targeting your audience(s) entails researching what is already available to them online and via other means and venues. Using online search engines, check key words and phrases that match the ideas and concepts you have developed for your project. Allow enough time for these searches. Don't stop at the first or second page of the search results. You don't have to look at every site that is listed, but you should read their descriptions and visit them if they appear to be similar to the one you are planning.

This will not only give you information about what resources are already available, but also allow you to see for yourself what works well online.

Familiarizing yourself with what is already online is a valuable exercise that helps you determine what best suits your project requirements. You may be able to learn about a particular design layout or a new technology. You may even find an especially relevant site or two that would be suitable as a prototype to use in developing your own project.

Your colleagues at other heritage institutions are another valuable source of information. The more opportunities you have to consult them and to learn from their experience, the better.

## Content

The holdings of our heritage institutions include vast and invaluable primary and secondary sources of information. As you work through your project, refer to these sources of information, both for content and for interpretation of your online project's concept and theme. You can then choose which of the primary and secondary materials you are going to let visitors access online.

Many of your content decisions are based on the needs of your audience in light of your project goals. For example, if your audience is heritage professionals at other institutions and your goal is to share information, your online content may consist of raw data, such as catalogue data. An example of this approach is the *Artefacts Canada*<sup>2</sup> section of the Canadian Heritage Information Network (CHIN) Web site. But if your goal is to interest broader audiences in your collections, your content specialists should choose more secondary information to interpret the content being shown, and illustrate the story being told on the Web. The *Virtual Museum of Canada* (VMC) Web site provides several examples of interpreted material in virtual exhibitions.

Even at this early stage in the planning process, as the project manager, you should have a general sense of the number and types of objects intended to be shown on the Web, and how this content will be selected and interpreted.

## 1.2 Crafting the Concept

The first, and certainly most significant, step in planning online content creation is to envision the concept. Concept creation takes place in two distinct phases. First comes the idea for a thematic concept, meaning the overall approach you plan to take with your material.

Hold a brainstorming session with staff members and present your preliminary idea to the museum board. These people understand your museum's needs and will give you honest advice and feedback. Talk to other heritage professionals about your idea and be sure to consider possible partnerships. Give everyone a chance to voice concerns you may not be aware of, especially any that may be directly related to the production process.

A thematic concept is a coherent storyboard or conceptual framework fashioned from several smaller ideas. Its purpose is to interpret your content in a way that is as compelling as possible to your target audience(s), and to help meet your project goals by making the most of the online medium and available budgets. With this thematic concept in mind, you and colleagues involved at the concept development stage can start working through themes and sub-themes, and begin planning the development process. Having done your initial research, you may also want to consult other colleagues, stakeholders and members of your audience target groups as you continue to refine your concept.

The concept and the online content development needed to bring it to life will have a significant impact on the selection of team members, the research and the budget. Once you establish a project team, its

members will continue to work on crystallizing the concept and developing sub-themes based on further research and content selection.

Once you have a fully articulated thematic concept, it is time for the second phase of concept development. The Web designer translates your storyboard into the online medium, and gives it full visual (and perhaps auditory) expression in the form of a Web concept design. The best virtual exhibition concepts feature powerful designs that are rooted in strong thematic conception.

For example, when CHIN develops a virtual exhibition, it has an audience in mind, an identified need and an outline of the preliminary goals. CHIN begins by creating the concept and envisioning its expression in a virtual exhibition. Museum partners are asked to contribute to the development process, and to get involved in further work on the overall thematic concept, sub-themes and content, as well as concept design.

Visit the VMC Web site<sup>3</sup> to review the array of concepts that have been developed into virtual exhibitions. Other Web portals or searches may also give you additional ideas for developing content that is effectively presented to take advantage of the digital medium.

Be sure to coordinate your concept with your institution's mandate, with the goals you have articulated, and the needs of the target audience you have identified and researched. This will strengthen the concept and sub-themes, and enhance the end result.

## **EXPERT ADVICE**

Don't be shy when brainstorming your concept. Sometimes an idea that seems too costly or even a little crazy helps shape the final approach!

### **Questions to ask when crafting a thematic concept:**

- Does the concept work within the museum's mandate?
- Does it fill an identified niche or address a need?
- Is it achievable with available budgets and resources?
- Can you secure copyright clearance for the content?
- Can its success be measured?

### **Questions to ask when evaluating a concept design:**

- Does the concept design fully express the intent of the thematic concept?
- Is it consistent with the aesthetic sensibilities of your target audience(s)?
- Does it meet audience needs?
- Does it optimize the possibilities of the online medium?
- Does the target audience have the latest technology to access the product?
- Will it result in a product that your museum can launch and maintain online with the available resources?

During conceptual planning, you can identify issues such as funds required or the skill set needed in-house to complete your project. This in turn allows you to fill any gaps in your project plan such as applying for additional funding, sending staff on a Web development course, or seeking assistance to secure copyright clearance for certain materials.

## **Will Your Concept and Content Appeal to Your Audience?**

You now have a fully articulated thematic concept, expressed in a concept design. But before you spend a lot of time and money developing your project, it is recommended that you test your concept on your

target audience. There are a number of low-cost ways to do this that do not require a lot of time. Early testing can pay big dividends by allowing you to gather valuable information so that you can make well-informed project decisions and a more successful product.

Testing your concept does not mean you have to slow down or stop the rest of your plans. While testing your concept, you can continue going over the instructions in this handbook.

Holding an informal evaluation session with a few museum volunteers and members can provide useful feedback. If your museum runs educational tours and activities for school groups and your target audience includes such groups, consider approaching the school board to ask whether some time could be spent with some of these groups following their museum visits to explore the museum's plans for a new virtual exhibition or interactive game.

Give them a clear idea of your project and ask specific questions to guide responses. Answer all the participants' questions. If your project is aimed at a new audience or is about a new issue or theme for your current audience, you may want to consider using innovative methods to evaluate the concept.

If you create a storyboard or interactive plan, a navigational plan and a project description, you can gather information from people online and in person. When gathering responses, you may find that very few people are interested in an interactive feature that would have taken a lot of work to produce; or that the questions they ask about content lead you to use a different approach in the writing, the navigation structure or the selection of materials.

Section 2.2, *Story Line and Materials*, provides more information on creating a storyboard or interactive plan. See section 2.5, *Evaluating Your Product in Development*, for more details on focus group testing and surveys.

See Appendix A for a sample questionnaire, titled *Sample Planning Research Focus Group Evaluation Questionnaire*, and Appendix B, which contains the document, *Sample Planning Research Focus Group Evaluation Recorded Responses*, recording the results a project manager obtained by meeting a group of elementary school children. These research results were part of the planning process, and were used to note the children's interest in this topic and other sites available on the Internet.

## 1.3 Determining the Budget

Sharpen your pencil. You are going to estimate how much your project will cost. Before you begin this process, you should contact colleagues in the field for advice on estimating a budget. You can also contact multimedia companies to obtain estimates of current Web development costs.

Appendix D contains a *Project Budget Template* listing most of the budget categories you might want to consider. You can use it to itemize daily or weekly costs, or simply to include a total in each category. Any items on the template that are not relevant to your project can be left blank. The template is meant to be a guide only, to keep you from being unpleasantly surprised in mid-project. Figures 3 and 4 show the relative costs of the components of two online projects undertaken with CHIN as executive producer.

**Figure 3: Sample Budget for an International Virtual Exhibition**

<b>Associated Costs</b>	<b>Description of Expenditures</b>	<b>*Percentage of costs</b>
Copyright Fees	Costs for image, sound and video rights	3 %
Museum No. 1 Executive Producer & Head of Content Development	Content development and curatorial fees	12.6 %
Museum No. 2 Partner	Content development and curatorial fees	12.6 %
Museum No. 3 Partner	Content development and curatorial fees	12.6 %
Project Manager	Salary	20 %
Multimedia Consulting & Work	Costs for multimedia and graphic development of the main site	20 %
Educational Activity Development	Costs for multimedia development of 9 educational activities	10 %
Marketing	Consultant, traditional promotion and media event	5 %
Translation	Based on hourly or per-word costs	4.2 %

*Sample Budget for an International Virtual Exhibition*, developed in 2001, with CHIN as executive producer. The project took eight months and involved the part-time efforts of all parties. The exhibition includes approximately 150 images, 30,000 words of English and French text, and 9 educational activities. \*The percentage of costs also includes the values for some items contributed on an in-kind basis.

**Figure 4: Sample Budget for an Interactive Game**

<b>Interactive Game Involving 3 Partners: Associated Costs</b>	<b>Description of Expenditures</b>	<b>*Percentage of costs</b>
Heritage Site No. 1 Executive Producer	Content development and curatorial fees	10 %
Heritage Site No. 2 Partner	Content development and curatorial fees	10 %
Heritage Site No. 3 Partner	Content development and curatorial fees	10 %
Project Management & Content Development Coordination	Salary	20 %
Graphic Designer	Photography, illustrations and animation	6 %
Multimedia Company Work	Costs for development and programming	30 %
Marketing	Promotion and search engine registration	2 %
Equipment	Web site management software	1 %
Translation	Based on hourly or per-word costs	8 %
Launch Event	Costs of media release and event	3 %

This *Sample Budget for an Interactive Game* was developed in 2001 for a six-month project, involving the part-time efforts of all parties. The size of this game includes approximately 120 pages, 60 images, and 34,000 words of English and French text. \*The percentage of costs also includes the values for some items contributed on an in-kind basis.



## Obtaining Support for Online Heritage Projects

For information on possible sources of funding for online heritage projects, please visit the funding section of the CHIN Web site. The resource document *Funding Sources for Digitization* describes a number of funding opportunities available specifically for digitization projects. Some of these resources also provide funding for staff, copyright management in the digital environment for Canadian copyright holders, and equipment and training for digitization projects.<sup>4</sup>

If you are considering applying to the VMC Investment Program, consult the *VMC Program Guidelines*<sup>5</sup> for information about the Program objectives, operating principles and content policy, along with a list of criteria for investment and eligible and non-eligible costs. Once you have completed crafting the concept and determining the budget, your next step should be your application to the Investment Program.

## Cost-Saving Opportunities

Don't be discouraged if the budget you have to work with is small. One of the advantages of Web-based content is that it can evolve and be added to over time. You can divide your project into phases and begin by getting some online visibility for your product, and then add to it as money becomes available. This takes careful planning so that each production phase looks complete and builds on the greater whole.

Another option is to consider the possibility of corporate sponsorship, through which private companies and businesses in your area are given exposure on your Web site in return for their financial support. You can negotiate the level of promotion, which can be based on the amount they would like to contribute.

If students or volunteers wish to be involved with your project, you may be able to factor in their time with little budget impact. Remember that if you include volunteers or students on the team, it is up to you to provide them with direction and support to ensure that the project objectives are met. It is also important for you to let them know how important their contribution is to the overall success of the project.

Many provinces and territories have co-op work programs as part of high school, college and university programs. Co-op students who are interested in becoming part of an organization for a specified period of time during their studies can contribute enthusiasm and a wide range of skills.

If after all of your work on the budget, you add up the numbers and find that the total exceeds what is available, you still have some options.

### Cost-cutting questions:

- Can you make some cuts, perhaps by removing a feature or scaling back in some area?
- Can you source more funds?
- Is there an opportunity to barter and trade? Can you secure a service in exchange for a one-year admittance pass? Get a discount in exchange for a link and logo featured within your product?
- Can you break your project into phases, over two fiscal years?

## 1.4 Establishing a Schedule

You may want to celebrate an event or anniversary with the launch of your online heritage product, or set a deadline based on your current long-term schedule. Either way, once you establish a launch date, you can work backward from the date and identify everything that needs to be done to meet the product launch date. If your launch doesn't have to be tied to a specific event, then you can, of course, work forward through the various production steps to set a launch date.

Develop a detailed list of activities, with the time required for each. Once this has been done, priorities can be set for the activities, which can often be conducted concurrently rather than sequentially. Establish milestones to mark the completion of all tasks and activities related to specific phases of the project, or types of work required. Include project resources as a critical part of this list.

It is crucial that you establish a detailed project schedule listing every step, activity and milestone, and their deadlines. Schedule contingency time, or a “buffer zone” to allow for contingencies or for tasks taking longer than anticipated. Unforeseen circumstances arise during the course of even the best-planned and managed projects. Also consider the learning curve. Is your team experienced in this kind of work? Or will an initial task take longer as some team members hone their skills?

Identify key points throughout the development process for contacting project stakeholders, such as partners and sponsors, to request feedback and approval. These can be identified as milestones in your project schedule.

It is important for you and your team to obtain the approval of stakeholders from the very beginning, to ensure that your approach, content and technology choices meet project objectives. Use this initial planning period to identify any significant changes made to the original project plan and inform everyone about these. During later development phases, request detailed feedback on elements of design, usability and content. Responding appropriately to the feedback you receive will be much easier if you allocate generous time periods for stakeholder reviews, for making the resulting modifications or changes, and for receiving approvals.

Allow time for testing throughout the project, not just at the end. It is better to decide early that something is not working, so that you can make other arrangements to accommodate or change it, if necessary.

**Figure 5: Sample Project Schedule**

Activities and Milestones	Aug 2001	Sep 2001	Oct 2001	Nov 2001	Dec 2001	Jan 2002	Feb 2002	Mar 2002
<b>Aug–Mar</b> Weekly to biweekly conference calls								
<b>Aug 2</b> Introductory call among project partners and preliminary brainstorming								
<b>Aug 16</b> Brainstorming session to determine content and broad themes Conduct audience testing								
<b>Aug 30</b> Call to finalize themes & determine work path Multimedia company selection								
<b>Sep–Nov</b> Research and preparation of content								
<b>Sep–Nov</b> Development of template & storyboard by producer Conduct audience testing								
<b>Sep 20</b> Submission of sample text from each partner								
<b>Oct 25</b> Submission of all images, audio, and video clips								
<b>Nov 8</b> Submission of image text to producer								
<b>Nov 15</b> Submission of introductions to producer								

<b>Nov 29</b> Submission of text for Credits section and Resources section									
<b>Dec 20</b> English Beta version of product due Conduct audience testing									
<b>Jan 10</b> Feedback on English Beta version due									
<b>Jan 10–Jan 15</b> Corrections to English Beta version									
<b>Jan 24</b> Final approval of English Beta version due									
<b>Jan 31</b> French Beta version due									
<b>Feb 14</b> Feedback on French Beta version due									
<b>Feb 14–28</b> Corrections to French Beta version									
<b>Mar 7</b> Final version of French product									
<b>Mar 7–14</b> Final review and testing of entire online product									
<b>Mar 21</b> Conference call Final approval of online product									
<b>Mar 27</b> Virtual exhibition ready for launch									

## Project Milestones—Are We on Target?

Throughout the project schedule, you need to identify milestones that can be measured. Identify specific tasks to be completed, reviewed, and reported on by target dates. Depending on the size of the project and the length of the schedule, there should be several measurable milestones.

Keep track of who is responsible for each step or milestone. It is important to keep your project on track and on time. Figure 5 shows a *Sample Project Schedule*. Appendix E, *Sample Project Plan Checklist*, is a tool to help you develop your own project schedule.

## Testing and Focus Groups

It is important to test and evaluate your product after every milestone, whether by getting feedback from stakeholders, testing product functionality or consulting a focus group. Catching errors as each stage of work is completed is far more efficient than reviewing and testing all elements together as they near completion. Testing and focus group evaluation should be planned ahead and incorporated into your schedule.

### Focus groups

A group of potential users that is identified to review, test and discuss your developing Web product is referred to as a focus group. These users should represent your product’s target audience. Where do you find people willing to become part of a focus group? That depends on who the target audience is.

Suggestions of places to reach your target audience:

- local schools, colleges, universities, night schools, art schools
- local library
- gallery or museum Web site or member newsletter
- community events/volunteers section of the local newspaper or Web site

- professional association or society
- churches, synagogues, temples and mosques

If the product is targeted at a young audience, try:

- organizations and institutions that have youth groups
- children of friends, colleagues and museum or gallery members or volunteers
- scouts, guides and other youth groups

The number of participants can vary depending on the size of the facility for the focus group meeting. Groups should not be too large. If you have more than ten people, dividing the group into separate sessions, will keep discussion useful and focused.

Unless your group is very small (two or three people), you will need an overhead projector connected to a computer that has the prototype running on it. The prototype can be copied to a CD, or to the hard drive of the computer. If possible, tape record the session. This can be useful in capturing all of the comments for reference afterwards. Ask the focus group subjects for permission before recording the session. If you wish to use their comments as testimonials for the product launch, inform the group of your intentions and ask their permission for this as well.

Prepare a list of specific questions for the focus group participants. Some of the questions can gather information about your target market and others can be specific to the product. Questionnaires with multiple-choice answers and comments are easy to use. Compiling results is easier using weighted choices, and comments can support and illustrate the analysis following compilation.

## **EXPERT ADVICE**

Collecting comments from users when testing gives you testimonials, which can be used in marketing your product when it is ready to launch.

### **Important steps for successful focus groups:**

- Explain what you are doing and why you are developing the Web presentation.
- Remain objective. Leave your own preconceived notions and biases at the door. Consider having someone else lead the discussion.
- Keep to your list of questions, or to the discussion guide that has been prepared, but be flexible.
- Let the participants do most of the talking. Encourage them to express their feelings and thoughts.
- Give everyone an opportunity for input.
- Record the session and/or ask the participants to write down their comments on the provided answer sheet.
- Have relevant observers present but not actively participating.
- If possible, do not involve team members with the focus group, as members may be too close to the project. Instead try to hire an independent person for the project who will work with the focus group and report to you.

Most people who agree to become part of a focus group understand they are volunteering their time. An incentive, however, is an effective way of ensuring you do not end up with no-shows. If a small honorarium payment is not possible, perhaps a poster, a book or free admittance pass would be suitable. Another reason for a gift is to show participants that you value their time and input.

Following your testing, review all of the comments made. Play back the session recording, and add to the notes taken during the session. Consider all suggestions for changes and improvements. Then quantify them. How long will that take to change? What will it cost? How much value will it add? Then proceed to plan the modifications that make the most sense within your budget and schedule.

## Getting the Team On-Side

Ensuring that team members understand their roles and responsibilities makes it easier for you to manage the project budget, schedule and resources.

After identifying the individual strengths, experience and preferences of team members, assign specific activities and add them to your task list. Hold a team meeting to discuss the list and assignments, as well as individual meetings with each team member to review responsibilities in detail and address any questions they may have.

Once you have completed the project schedule with the input of team members, stakeholders and possibly some expert advice, it should be shared with all team members. This is an important buy-in phase. If the people who will be carrying out the tasks do not feel that the schedule is realistic and achievable, then you'd better go back to the drawing board.

Individual team members must recognize that if they miss a deadline in their work it could affect the work of another team member. Make sure the team understands these kinds of limitations (of time, budget or a specified deadline), and that they are prepared to follow the schedule.

As the project manager, confer with each team member on a regular basis to be sure that his or her assignment is on track. Hold regular group meetings to inform everyone about progress and to resolve issues, in accordance with the team operating rules that have been established.

## 1.5 Project Plan and Requirements

### Your Project Plan or Proposal Document

Writing up your project plan will likely prove to be a beneficial exercise that helps you chart all activities required to successfully complete your online heritage project.

#### What to specify in a project planning document:

- concept
- objectives/goals
- language(s)
- audience(s)
- computer system technical requirements (platform, memory, hardware/software)
- technical components of the Web product
- functions and features (e.g., animation)
- content organization
- branding (logo) and marketing aspects
- milestones or deliverables
- any other special circumstances, unique features or considerations affecting your project

As the basis for a proposal, your Project Plan document can be included in a funding application, as part of the early planning process. Later, as you and your team progress through the design, development and launch of the Web product, your plan can serve as a useful checklist, guiding you each step along the way. It can be updated as necessary, and in the future will provide a record of the procedures and methods you employed—a template for future projects.

## **Project Requirements Document**

Along with the development of the concept, budget and project plan, an important step is to create a document defining the project requirements to ensure that the team's expectations are met throughout the development phase. Decisions you reach at this stage eventually determine how you will convey the concept to your audience(s) and whether all your project goals will be met. The project requirements document defines the production process. It should include everything you expect to find in your final product from navigation to databases to interactive elements. Important development steps to consider while developing requirements can be found in section 2.1, *Production Process*.

## **1.6 Building the Team**

Think about forming a team of specialists who can expertly choose content, write interpretive text, and design, develop, program and launch the resulting online heritage product.

### **Roles and Responsibilities**

The virtual environment is constantly evolving, as should your approach to building a project team. If people with expertise in communications and marketing can be included in the early stages, they will help you fine-tune your approach to the content, the composition of the core content and the makeup of the technical team.

Your communications and marketing advisers should stay involved throughout the project, to help ensure that the developing concept is communicated as effectively as possible to your audience(s). Your team would also benefit from the input of an experienced educator, who could add a critical perspective to the interpretation of online content. Finally, an editor who is experienced in Web communications, but is not part of the core development team, would be another source of valuable feedback. Involving an out-sourced editor from the earliest stages in the project helps to maintain consistency as content is written.

To help fill these roles, personnel from your institution or freelancers should come on board from the beginning of the project, and stay involved throughout development. As your online heritage project evolves and requires the expertise of additional people, your team needs to be flexible to allow their participation.

Your core team needs to fill three main roles: project management, content development and Web development. In a small museum, one or two people could assume all three roles. However, for major projects involving large heritage organizations and multiple partners, individual departments or a contracted firm are likely to be more appropriate. After the team is established, consider who will act as producer for the project. Often, the heritage professional acts as the producer and the museum as the lead agency. The heritage professional can handle all of the project management; or a multimedia team manager, freelancer or student can be hired to assist the producer as the project manager. This relationship between the producer and project manager will differ, depending on the situation. An out-sourced multimedia company can also co-produce.

### **Project management**

Your role as project manager is critical, since you lead the team, liaise with other levels within your museum (board, staff and volunteers) as well as other levels of government (funding and consultation), keep track of tasks, budget, schedule and promotion efforts, and supervise outside contractors. The project's success depends on your understanding of Web development processes and computers, your organizational and people skills, as well as your ability to visualize the Web product, build team spirit, organize activities and solve problems.

## **Content development**

Your content specialists strive to select specific content that catches people's attention, communicates the concept to your audience(s) and meets the goals articulated for your online product. You need to identify content specialists who know the collections and programs and are experts in the particular field of research.

The content specialists may also have interpretive writing skills. Even so, you may find it beneficial for the content specialists to work with writers who are well-versed in the needs of your target audience(s). Specialized interpretive writers can bring the artefacts and information to life in a way that is not only understandable, but also compelling to your audience(s) in particular.

In some museums, the curator could act as the project manager as well as the content specialist and the interpretive writer. In others, different professionals might fill each role, or public relations and collections staff could work together. Where different people perform the various functions, they need to work closely together to fine-tune the concept, select images, prepare text and reach consensus on key content decisions. Later in the development process, the content specialists review the design, storyboard and architecture to ensure that these elements support and enhance the content and deliver the audience messages as intended.

Your online product must be designed and developed so that it runs smoothly on the Internet and is appealing to people who visit for information and entertainment. The Web developer, or Web development team, must have a solid grasp of design principles and how to apply them in the Web environment, as well as strong programming skills. Web development can be accomplished by two or more people, including one who designs the Web pages and layout, and another who develops or programs the product for the online environment. The Web development team can also help you register with search engines and acquire a domain name for your product.

You may decide that in-house personnel can fill the Web development role, or to contract an outside multimedia firm to design and develop your Web product. If you contract someone outside your museum, they become part of the team, attend meetings and can be involved in some decisions. We recommend that a legal agreement be developed to stipulate the roles and responsibilities of the parties. The document, *Protecting Your Interests: A Legal Guide to Negotiating Web Site Development and Virtual Exhibition Agreements*,<sup>6</sup> available from CHIN, will assist you in preparing a contract for a multimedia company.

## **Basic Web Development Skills**

Although various specialized skills are needed for online heritage project development, the project manager does not need to possess all these skills because a team of people who do can be assembled. Professionals with the requisite skills may be found in-house, through project partners, or by hiring outside expertise.

### **Interpretive writing skills**

Good communication, interpretive and writing skills are essential. Writing for the Web is not the same as writing a novel or an article. On the Web, writing should be clear, concise and positive. It should use an active voice and simple sentence structures. Navigation and instructions should be written in the present tense and imperative mood. If jargon, specialized terms or acronyms are necessary, check that they are accurate and define them where confusion might otherwise arise. Make every word meaningful and every sentence intriguing. The language used should be appropriate for your target audience.

### **Graphic design skills**

An understanding of design concepts and principles as well as the ability to apply them are important when bringing the project to life through graphics and page layout. Your product needs to be aesthetically appealing, as well as informative. In addition to design principles and layout requirements for the Web, the graphic designer must be experienced in the use of graphic tools and applications, such as *Illustrator*

and *Photoshop*. Although there is a learning curve associated with these software packages, they are powerful and can enable a good designer to create amazing graphics and illustrations.

### **Programming skills**

A basic knowledge of Hypertext Markup Language (HTML) is the minimum requirement for developing an online heritage product. Although several applications/software packages are available that facilitate the creation of Web products, a basic understanding of HTML ensures that the product is being programmed correctly. If you wish to further your programming skills, consider learning other markup languages such as DHTML, XML and programming languages such as Java and JavaScript. Familiarity with object-oriented languages such as ActionScript (to create Flash applications) and Lingo (Director language to create ShockWave applications) can be a great asset when creating interactive multimedia content. The same programming skills used for initial development will also be needed to update information and content (images and texts) after your heritage product is launched on the Internet.

### **Computer skills**

It is essential that the Web development team possess basic computer skills. Minimum requirements include a basic understanding of computer technology and platforms/operating systems (IBM-compatible and Macintosh personal computers), bandwidth, servers and Internet Protocol, as these affect the design, development, and maintenance of an online product. It is important to understand different kinds of drives (hard drive, disk drive, network drive), how to store information (files and folders), naming conventions for files (image and text files), file management (where the content is), and how to move between software products. The team should be aware of basic troubleshooting, including how to recover a lost or deleted file, what each basic error message means, and the contact number for technical help.

### **Organizational skills**

Successful project management hinges upon good organizational skills. These are applied throughout the production process as you design, develop, promote and launch your online product. Organizational skills also include foresight—the ability to anticipate issues and possible solutions. For example, it is important to produce your heritage project with maintenance issues in mind; content should be organized to allow for regular changes that are readily accessible to the programmer for updates.

Other members of your team should also have strong organizational skills that can be applied in areas such as mapping content (images, texts and directional buttons) in a way that enhances the ability of users to navigate and find what they are looking for quickly and easily.

### **People skills**

Because you and the team are working together on an intense innovative project over a limited period of time, people skills are crucial. Skilfully balancing opinions, viewpoints and issues is an art. Such skills become doubly important if your team includes partners from other museums or galleries, or contract graphic artists, technical writers and a multimedia company. Part of the art of managing people and guiding them to the successful completion of an online heritage project is balancing leadership, mentoring and communication. Positive feedback, proactive decision-making and problem solving are crucial aspects of your ability to manage teams. A strong ability to communicate goals and the rationale for doing things, along with team spirit, are the keys to managing people. Finally, it is important to keep up with new technology, developments and standards. As with all areas of your professional career, learning new computer and Web development skills is an on-going endeavour.

Refer to Appendix C, *Skill Set Checklist*, for a breakdown of the skills you and your team will require.

## **Multi-Partner Projects: Should You Work With Partners?**

Multi-partner heritage projects can provide many benefits. Partners can add depth and breadth in terms of experience, finance, research, content, marketing, promotion and audiences. As the project manager, you need to explore partnership opportunities and, where appropriate, arrange for the inclusion of new partners on your project team.



**Potential partners to consider:**

- another museum, gallery or heritage institution
- a museum association
- the city or township where your museum is located
- a municipal, provincial or federal government department
- a provincial tourism agency
- a school, college or university
- a community special interest group
- a member of the community with local or specialized knowledge
- a technology company (software or hardware)
- a corporation with collections or one that supports arts and heritage
- a multimedia company
- a corporate sponsor
- a private company

If you are seeking investment from the *Virtual Museum of Canada (VMC)* you should note that the VMC encourages collaboration between museums and other heritage and community organizations. The VMC operating principles<sup>7</sup> also stress a commitment to diversity. Partners can add diversity to online heritage in such areas as collections, regional diversity and perspectives. For your project and your collection, try to identify appropriate partners who would enhance the product you are planning.

**Questions to ask when determining a good fit:**

- Do potential partners share or complement your mandate, and the project goals and aspirations?
- Do your goals and objectives mesh? They may be different, but is there positive overlap?
- What is the short- and long-term vision of the project and the relationship?
- What role do the partners see themselves playing on the project?
- Who controls the decision-making, and in what areas?
- Does the partner bring experience or resources that benefit the project?
- Does the timeline work for all partners?

While there are many benefits to working with partners that are a good fit, you should also examine limitations.

**Possible benefits of partnership:**

- the creative energy and ideas of two or more teams
- more resources—content, funding, promotion, people
- more diversity—regional, linguistic, content, culture
- the ability to assemble collections virtually that would likely never be brought together physically
- greater audience reach
- enhanced learning opportunities
- more capacity for ongoing maintenance, updates and changes to the completed Web product

**Possible limitations of partnership:**

- shared ownership of the Web product, and all it implies, needs to be clearly defined
- compromises may be necessary to reach agreement in many areas
- a larger team requires innovative management strategies on the part of the project manager
- conflict resolution guidelines need to be defined
- there may be a need to balance private and public interests, or non-profit and commercial interests

**Contractual agreements**

When two or more partners come together, there are issues associated with the ownership of the intellectual property being created. Discuss ownership before embarking on the work, and detail

agreements in a contract between the partners. Seek legal advice from a licensed legal professional who has experience with online products or Internet issues and regulations. A binding agreement between the partners should identify ownership of the product and its underlying components. This sort of contract is essential to ensure that the parties agree and understand what is involved before embarking on the online heritage project.

Intellectual property rights are complex, and as technologies and the Internet evolve, contractual needs change. A legal professional should be up to date with these changes and be able to provide you with an appropriate partnership agreement.

**Items to consider in a partnership agreement:**

- roles and responsibilities
- statement of work
- term of agreement
- rights of partners
- commitments of partners (resources, schedule, etc.)
- termination provision
- obtaining copyright on material owned by others (e.g., images, text, audio clips)
- intellectual property ownership
- third party liabilities

**In-kind contributions**

Partnership in an online heritage project affords the opportunity to share the work of developing and delivering the Web product. Another benefit is that each partner contributes skills and resources that have measurable value. As partners, you need to agree on the value of the skills and resources that each partner contributes to the project and on a system for measuring value. Calculating values may assist you in determining how the partners are to be compensated for their contributions. Placing a value on the skills and resources provided may also facilitate the cost-benefit analysis of doing the project.

**Ownership of the Web product**

Your project partners, including private companies or corporate sponsors, might consider the key value of the partnership to be their brand's association with the Web product, or its promotion of one of their products (software or hardware for example). If this is the case, ownership of the Web product can rest with your institution. The time to define ownership clearly, and get it into a contractual agreement, is now, before the partners begin their work.

**The division of labour**

Sometimes, the division of labour may seem apparent simply by the nature of the partnership. For instance, if a museum, a major software supplier and a tourism partner are working together, it would seem obvious that the software supplier would provide the multimedia software for use in production, and that the tourism partner would provide content about sites of interest in and around the museum's location. However, it is still an excellent idea to discuss each other's roles and areas of responsibility in detail. An agreement clarifies expectations and facilitates the completion of tasks and eventual implementation of the online heritage product.

If all the partners are museums, the roles and responsibilities of each should be discussed, agreed upon, and included in the partnership agreement. Be sure to discuss and agree on the role and responsibilities of the project manager and determine which museum will act as the executive producer. This is an important role, and it should be clear from the beginning who fills it.

**In-House Skills, Outside Expertise**

You can choose whether to manage the online heritage project in-house using existing staff, hire a multimedia company, or bring in specialized help as required by the project.

If you decide to develop your Web product in-house, you want to ensure that you have at least one person within your institution who possesses basic Web development skills. Even if you decide to contract your online project to a multimedia company, you will nonetheless need an understanding of these skills so that you can write the proposal and specifications, guide and supervise the contractor's work, and maintain the finished Web product.

## Developing Online Content In-House

### Potential benefits:

- probably less expensive
- full control over every decision
- an opportunity to use some existing skills and learn new ones
- an opportunity to employ a co-op student
- an opportunity to hire a new staff member or employee
- ability to maintain and update your product as required in-house

### Potential drawbacks:

- a heavy workload, over and above normal responsibilities
- possible longer development timeline
- limited expertise available in-house
- locating a suitable co-op student, volunteer or staff with relevant skills and experience
- the need for in-house expertise to handle on-going maintenance of the completed product

## Hiring a Multimedia Company

### Potential benefits:

- breadth of experience and expertise
- ability to use a wider range of technologies (*Flash*, 3D, QTVR etc.) without costly in-house upgrades
- professionals analyse the project and make recommendations (for example: database driven, or HTML)
- a larger team permits faster project completion
- warranty on the work
- fixed price budget if project specifications are outlined and do not change

### Potential drawbacks:

- possibly more costly than doing it in-house
- entire project team is not under one roof
- additional effort involved in maintaining consistent communication, ensuring there is a clear understanding of the project from all ends
- possible loss of continuity when it is time for updates or future revisions
- extra cost for additional modifications or changes

### If you decide to hire a multimedia company, here are some steps to consider:

- Ask colleagues and friends in the heritage field if they know of a multimedia company, an individual, a group of students or freelancers they can recommend.
- Contact your local chamber of commerce and ask for recommendations of companies.
- Use online directories like *Multimediator*,<sup>8</sup> which lists Canadian companies.

### Points to consider when choosing a multimedia company:

- Ask for references and check them! Would the client hire them again?

- Review the company portfolio. If it is not part of their Web site, can they provide at least five online examples for you to review?
- Ask to see their contract terms. Do they provide a warranty on their work?
- After the product is launched, for how long is the warranty offered, and what does it include?
- What kinds of sites have they developed? Have they worked with the heritage or cultural sector before?
- How long have they been in business?
- If your museum employs staff with a background in information technology, ask them to review the quote or contract the multimedia group has prepared.
- Fellow staff members can review the project proposal and budget. Are timelines and line item amounts accurate?
- How big is the company, and how many employees do they have?
- Can the company draw on the expertise of outside contractors?
- If your product is bilingual or multilingual, can the company demonstrate its ability to handle documents in two or more languages? Ask the company to provide samples of previous bilingual work. Does the company have bilingual staff that will be assigned to the project?
- Check the company's skill set, using the same methods you apply for assessing in-house personnel. Do they have demonstrated capabilities in interpreting, writing, graphic design, programming, computer, organizational and people skills?

You can either approach and assess companies individually or simply invite several companies to submit proposals on a competitive basis. As part of their tenders, bidders can be asked to include a design or mock-up of the home page and the navigation architecture, based on your thematic concept and project objectives. Most companies will agree to do this, provided a small fee is paid for their work. Even if none of the designs is subsequently adopted, the exercise can provide a good indication of the creativity, efficiency, seriousness and depth of the bidders' teams. If you think that you might want to use elements of a bidder's mock-up to develop the product with another designer, then be sure to obtain the rights to do so in your request for proposals.

## **Negotiating a Contract with a Multimedia Company**

If you decide to hire a multimedia company, you may well end up with a high quality Web product that meets your goals and objectives. To accurately price the work, however, the multimedia company must know as much as possible about what is to be created. Develop project specifications so that the parties understand the work to be performed. The company should provide you with a contact person to deal with throughout the project. You should meet this contact person at several intervals while the project is underway, possibly somewhere other than your office to keep distractions to a minimum.

### **Project specifications should be appended to the contract and should include:**

- the volume of content, for example 400 images with accompanying text in two languages
- the amount of video, audio and multimedia material
- the functionality that is required of the product, for example the search capabilities, and the ability to enlarge images
- any requirements for animation and movement (e.g., use of *Flash*)
- a requirement that a non-technical staff person be able to update page contents (meaning that you will need a password-protected application, or "back-office," programmed specifically for your needs, that lets you upload certain information without having to know HTML)
- a schedule for the project
- the hosting server's technical specifications
- your expectations regarding equitable accessibility
- a requirement that the final product be viewable and fully functional in the current versions of both major browsers (Netscape and Internet Explorer)
- a requirement that the product operate with both IBM-compatible and Macintosh platforms

You should also list any other specific requirements arising from the nature of your content, the needs of your audience(s), partners or other specific circumstances of your project. Communicate these, as well as your expectations and limitations (budget, schedule) to the multimedia company. They will take all this into consideration when they prepare a quote for the work.

Once you agree on the work and the price, it is time to draw up a contract. Ask the multimedia company if they have a standard service contract. If so, ask for a copy to review their standard clauses. In addition, review your organization's standard service contract and if your institution is affiliated with another organization or level of government, review its standard service contract.

Where each party has its own standard service contract, it is recommended that your institution use its own agreement, which can be altered for the work with the multimedia company. If no such agreement exists, you might avail yourself of the opportunity to draft an agreement, in consultation with legal counsel, for future use. An institution should only use a standard service contract suggested by a multimedia company if it has no relevant agreement of its own.

**A contract should:**

- clarify roles and responsibilities
- contain a clear and thorough statement of work
- acknowledge and clarify the status of intellectual property considerations
- specify who will retain rights to the source codes
- contain quality commitments, and warranty provisions on work
- identify the terms and duration of warranty
- contain dates and content of deliverables
- contain payment terms, including a statement if payments are to be made in stages
- contain termination provisions
- include product specifications

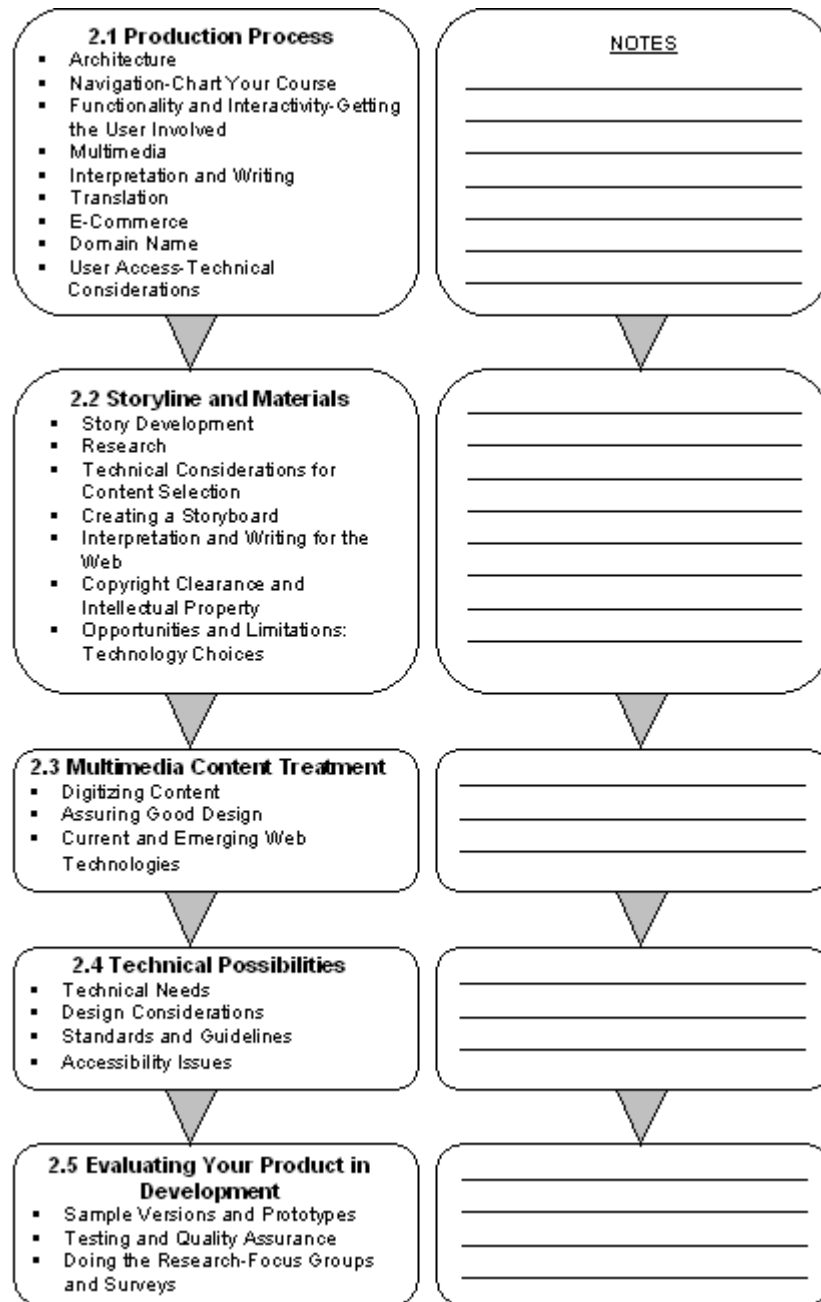
A legal agreement should be developed to define the roles and responsibilities of the parties. The document, *Protecting Your Interests: A Legal Guide to Negotiating Web Site Development and Virtual Exhibition Agreements*, available from CHIN, will assist you in contracting with third parties for Web development.

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**Figure 6 - Project Development**



The key steps of Project Development.

## 2. Project Development

### 2.1 Production Process

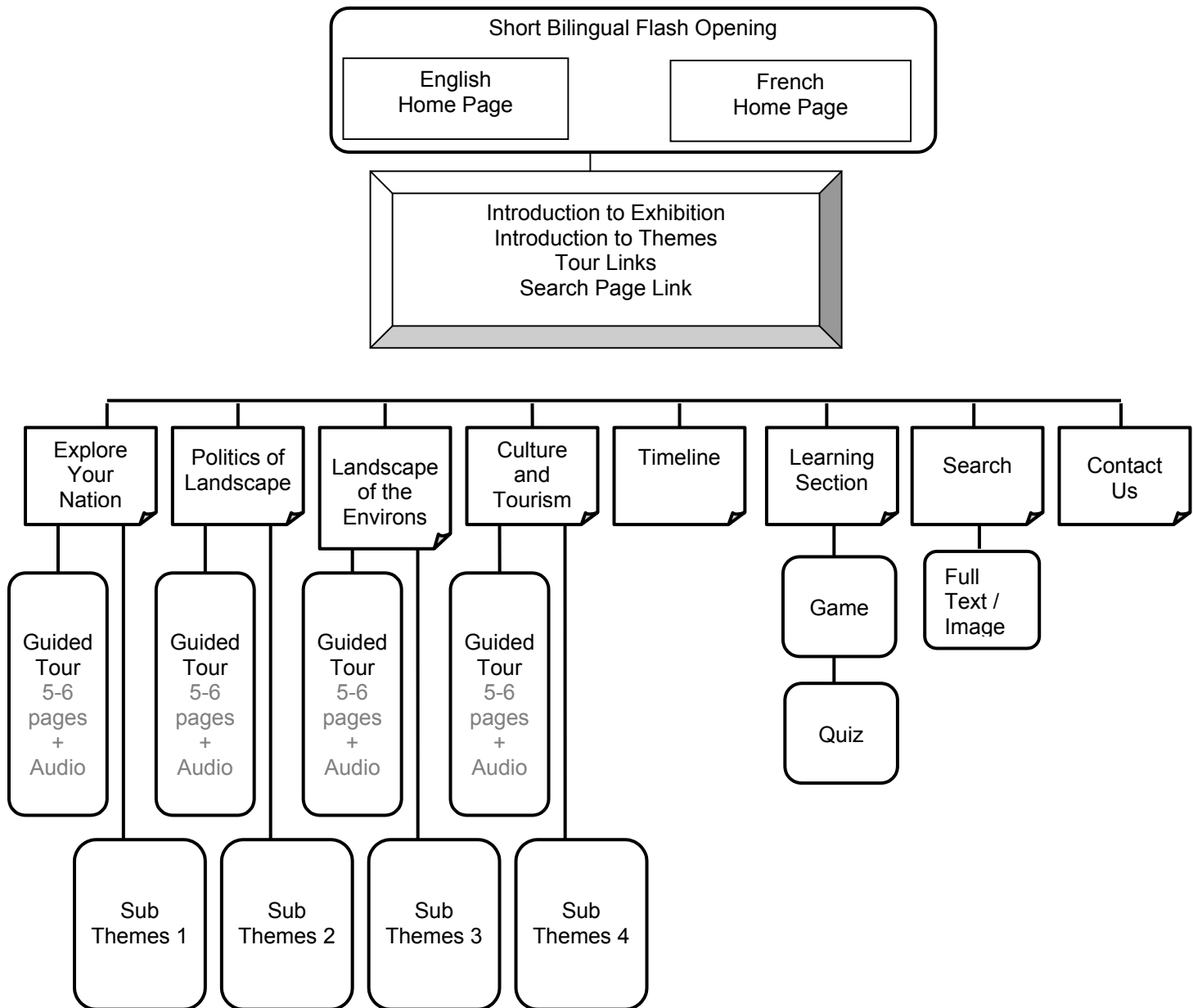
#### Architecture

Virtual content needs a plan that identifies the “virtual spaces” created to tell the story. The logic should allow users to follow specified paths, but also take into consideration that they often stray from paths to explore. When that happens, navigation signposts are needed so users do not run into dead ends or become hopelessly lost.

Plotting these paths and defining what users will find as they pass through the different spaces provides the content or content fields, as well as the layout for the Web product’s architecture. Putting all of this on paper, a whiteboard or a computer screen allows you to visualize the product, and the path between its sections. Refer to Figure 7, *Sample Navigational Plan*, for an example of these paths.



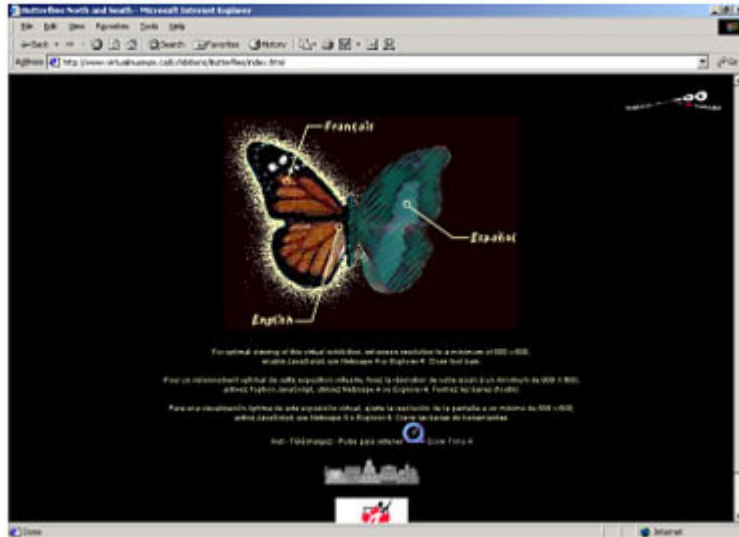
**Figure 7: Sample Navigational Plan**



This *Sample Navigational Plan* provides the structural framework for a Web product.

If you are developing a multilingual Web product, you will need to start with a Splash page. This is the page on which the language selection is made. A Splash page can also be used to enhance entry to the product with aesthetic effects, introduce a special feature or promotion, or offer alternative entryways to different sections.

**Figure 8: *Butterflies North and South***



This screen capture of the VMC exhibition, *Butterflies North and South*,<sup>9</sup> shows the use of a Splash page.

The Home page is where you introduce the product and provide users with options for exploring. A “Home” button link is an important consideration for the navigation, so that users can return “home” directly from any page within your online product.

## Navigation—Chart Your Course

Creating the Web architecture and navigational plan allows you to see how the story unfolds, and to detect any inconsistencies or poor logic in your design. The best time to identify issues is during the planning, when it is easy to incorporate any necessary changes. Once you have started development, changes can be time consuming and costly.

## EXPERT ADVICE

Include standard navigational aids: Search, Home, Contact, within the navigation so that these can be found on every page of your Web product.

Remember that you have a story to tell, so get all of the elements of that story into your plan, and try to think like a user visiting your online product for the first time.

**Questions first-time users of your online product are likely to ask:**

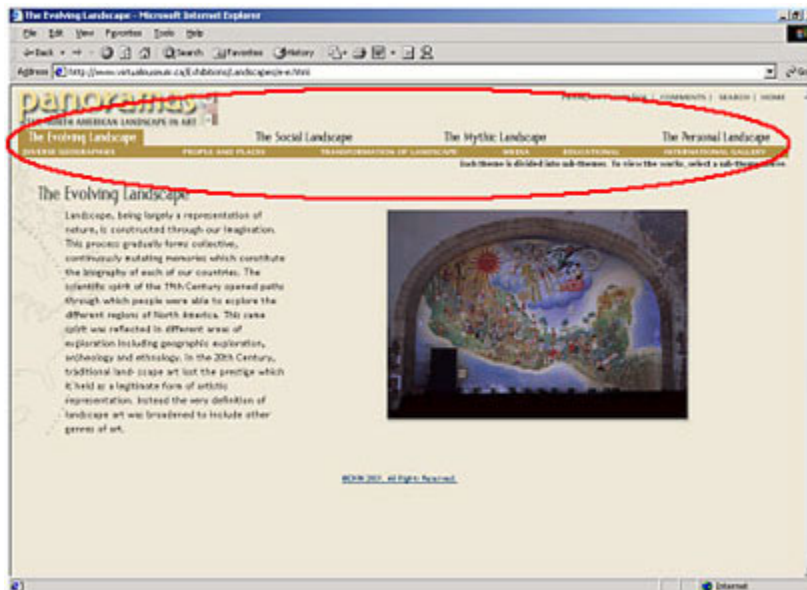
- Where can I go?
- What will I find?
- Do I want to stay?

## EXPERT ADVICE

Sub-headings within sections and at the top of Web pages are effective online navigational aids. They let users quickly see what is found in a large section, or long page, and allow them to link directly to specific content.

Provide clear options that allow users to interact with the content, choose a path of their own to follow, or choose the path you have created as a guide for their exploration. Refer again to Figure 7, *Sample Navigational Plan*, to see an example of a flow chart.

**Figure 9: Panoramas**



This screen capture of the VMC exhibition, *Panoramas*<sup>10</sup> shows the use of sub-headings at the top of a Web page.

## EXPERT ADVICE

Keep storyboards, architecture layouts, navigation plans and programming notes for future reference (maintenance needs and to serve as templates for other online development projects).

## Functionality and Interactivity—Getting the User Involved

The nature of the Web is to have users “participate” by making choices about where they go and what they experience through those choices. Your story will not always start at the beginning and follow a natural or linear progression. Because of the nature of the Web, people enter your Web product from a number of different directions or portals, not just the Home page. Interactivity can be basic or intricate and involve a user in a variety of ways. For more about various types of interactivity, refer to *Interactivity: A Forgotten Art?*<sup>11</sup>

The addition of interactive features can further engage the user with the Web product and create a more personal experience. Some interactive features allow users to manipulate the content, while others

enable them to develop a relationship with the product. The *Virtual Museum of Canada* (VMC), for instance, invites users to become Friends of the VMC. There are many effective ways to add interactivity to your Web product, some of which are listed below.

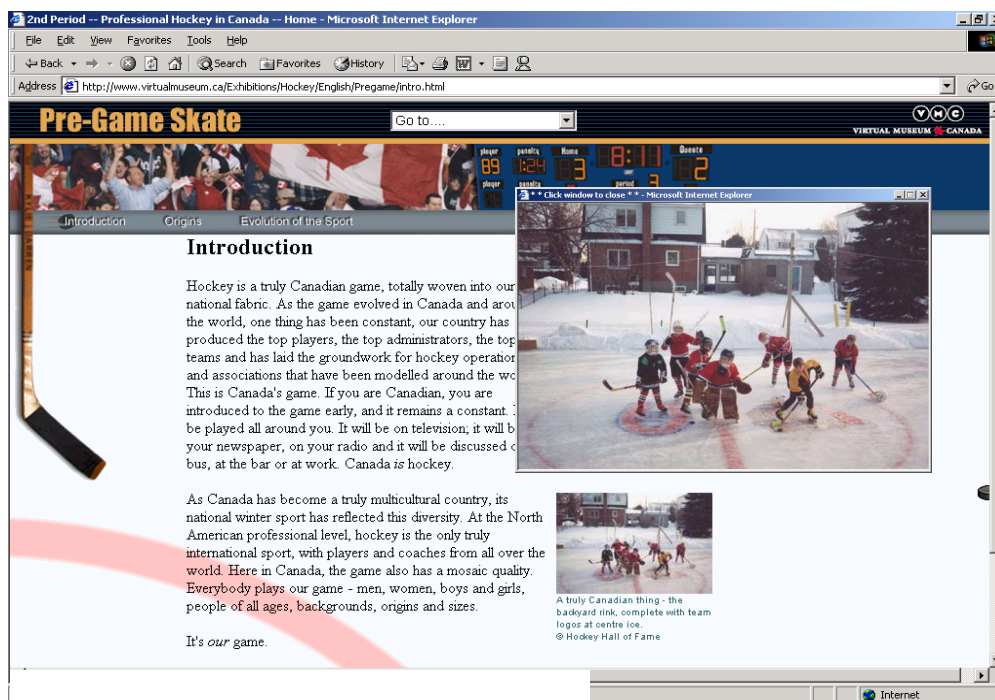
The level of interactivity affects the project budget and other resources, during both the development and the maintenance phases. Your objective is to plan effective ways of adding forms of interactivity that meet the product's goals and can be achieved within the production budget and schedule.

When planning functionalities to achieve the level of interactivity that is right for your product, there are many options to consider. These options, listed below, introduce a few different types of interactivity you could include in an online heritage product. You can read more about these options later in this handbook.

### Some functionality options to add interactivity to your product:

- images that can be enlarged or changed
- audio and video
- e-mail feedback form
- discussion forums
- a quiz
- searching
- games
- creating a message or postcard to send to a friend
- music or sound effects that can be turned on and off
- button to allow users to "Send this page" to a friend
- e-commerce, making a purchase or a donation
- polling or voting on a question

Figure 10: *Hockey: A Nation's Passion*



This screen capture of the VMC Exhibition, *Hockey: A Nation's Passion*,<sup>12</sup> shows the use of an image that can be enlarged.

## Multimedia

Graphics, images, audio, video, animation and text can add interactivity and interest to your online content. At this stage, your planning involves identifying what materials are at hand, what will need to be created, and what will effectively enhance your story within the production timeframe and budget.

Also see section 2.3, *Multimedia Content Treatment*, where multimedia is examined in greater detail.

### Images

Photography and image digitization will affect your budget. You should also consider the cost of copyright clearances and associated expenses. CHIN has an excellent online course called *Capture Your Collections*<sup>13</sup> that provides comprehensive information on the subjects of digital images, photography, costs, rights, etc. This helpful resource is well worth reviewing during the planning phase of your online heritage project.

### Audio and video

Audio and video elements add interactivity and, when well integrated, have a way of bringing a story to life. Consider your sources for audio and video material. Do you need these types of clips to enhance your story? Think about your target audience(s). What do you know about the location from which they will access your product (home, office, school) and the bandwidth available (in other words, how fast images and clips will load)? Browser plug-ins are now very common and need not be a barrier to adding audio and video to your production. Digital material will have to be compressed, however, to make the file size accessible for online use. Bandwidth and file size are discussed in handbook section 2.2, *Opportunities and Limitations: Technology Choices*.

### Graphics, illustrations and animation

File size, resolution and colour considerations for the Web are very different than for print media. That is why it is important to have someone with Web experience on your team. This person can be from within your organization or part of an “out-sourced” solution.

#### Some questions to ask about multimedia:

- Do you plan to use existing illustrations or have new ones created?
- Do animated graphics enhance your story? How? Where? How many?
- How much time is required to create them?
- If you create new images, how do you secure copyright for them?
- Does the artist keep copyright or sign copyright over to the institution?
- Do you need to digitize existing image material?
- Do you need to obtain permissions to use any illustrations?

See handbook section 2.2, *Story Line and Materials*, where copyright issues are explained.

When planning the multimedia elements explore what others have done on the Internet. Look for ideas. What works well? Remember your project goals and target audience(s) when conducting online research. Be selective and choose multimedia elements that enhance, rather than detract from, the text message.

## Interpretation and Writing

#### At this point in your planning you need to determine:

- Who interprets, who writes?
- How much research is required?
- Can you re-use some existing research, interpretation and writing?

- How much text is required to interpret the materials and tell the story effectively when it is integrated with other forms of media?
- Can you use existing research or print materials from the museum collection, and present these materials in an effective interpretative style?

## Translation

For assistance with your budget, the Canadian Heritage Information Network (CHIN) provides suggested costs associated with translation in the *Virtual Museum of Canada Program Guidelines*.<sup>14</sup> Multilingual Web content needs more development time.

### Consider:

- Will your Web product be available in one, two, or several languages?
- How much time is required for the translation?
- If audio and video are used, do you plan to have audio narration? Is language an issue?

## E-Commerce

E-commerce capability adds a level of interactivity and allows your institution to sell products online.

### Issues to consider:

- Secure hosting for your product generates higher costs.
- There are costs associated with the security certificate required for accepting credit cards online.
- Order fulfilment maintenance. Enough stock has to be kept on hand to meet the needs of a potentially worldwide audience.
- Setting up merchant accounts with a bank to enable credit card acceptance can be complex and costly.
- Customers expect a quick response.
- You need hardware and software to fill orders and handle requests.

## Domain Name

If you are creating a new site, you should obtain at least one domain name so that your Web product will have a Uniform Resource Locator (URL). If your site is to be accessed as part of your institution's existing Web site, then the registration of a new domain name is not mandatory. The cost varies depending on which domain name registration service you choose. In January 2002, the cost was approximately \$50 Canadian. You purchase the name online, with a credit card, and renew your purchase every one or two years. Many companies sell and register domain names. These companies can be found using a search engine.

**Figure 11: Top Level Domains**

<b>Generic Top Level Domain</b>	<b>Common Usage</b>	<b>Registration Criteria</b>
.ca	Companies and individuals that have a Canadian presence.	Restricted
.com	Commercial Companies	Unrestricted
.museum	Museums	Restricted—Museum, museum organizations and individual members of the museum profession (Register a museum domain name at musedoma <sup>15</sup> )
.edu	Educational Institutions	Restricted – Educational Institutions
.gov	Government Agencies	Restricted – Government Agencies
.mil	Military Agencies	Restricted – Military Agencies
.net	Network Providers	Unrestricted
.org	Not-For-Profit Organizations	Unrestricted
.tv	Broadcast Companies	Unrestricted

**Information to provide when registering a domain name:**

- company (domain holder) name, address, e-mail address, phone and fax numbers
- administrative contact name, address, e-mail address, phone and fax numbers
- technical contact name (usually the hosting company representative)
- billing contact (for renewal notices & related costs)
- primary and secondary servers (get this information from the technical contact)

When selecting a domain name, keep it simple, short and easy to remember. Try to avoid obscure hyphens and acronyms whenever possible. You can buy more than one domain name for your Web product. A single virtual exhibition or interactive game can have multiple domains; for instance, museumname.ca, museumname.museum, museumname.com. If your product is bilingual or multilingual, you may want to select a multilingual URL, or where that is not possible, select a URL in each relevant language.

**User Access—Technical Considerations**

It is important to know that unless the contents of a Web page load within 10 seconds you are likely to lose your frustrated virtual visitor. Test your Web product on various computers without a high-speed connection and on old hardware. Consider testing your Web product on a computer at a local library terminal or at home.

**No matter how fast your user’s connection to the Internet, Web pages are delivered slowly if:**

- the Web product is hosted on a server that has a slow connection to the Internet
- the Web product is on a server with a connection that is heavily used by hosting many Web sites that distribute large files

The term “bandwidth” is used to describe the speed of the connection available from the server where your online product is hosted, as well as the connection speed that users have to access the Internet as a whole.

See handbook section 2.2, *Opportunities and Limitations: Technology Choices* for more information about bandwidth.

## 2.2 Story Line and Materials

### Story Development

Always focus on your goals and target audience(s) when selecting material, developing the story and writing the accompanying text.

Think about the key messages you want to communicate to your online audience(s). If you are developing a virtual exhibition for your existing museum Web site, or to be accessed through the *Virtual Museum of Canada* or another portal, you can opt to tell the story in relation to the main themes featured in the portal.

Multimedia allows for story development using many different types of media: images, graphics, videos, audio clips, text and interactive elements. Refer back to section 2.1, *Production Process*, for ideas on how to develop interactive features.

### Research

First determine what materials already developed by the museum are available. They may need to be re-worked and copyright issues may need to be addressed, but such materials are valuable resources that might save you time and money.

In addition, consider how your institution can initiate primary research and documentation on the project's theme. These new sources of information and knowledge can then be added to the collections and made available online. The resulting online heritage product thus becomes a valuable new resource that can serve people well into the future.

In section 1.1, at the start of this handbook, the topic *What Is Already Available?* was discussed. It recommended visiting Web sites that cover similar subjects to help you define your concept. Those same sites may also be able to help you decide how to present your story, without necessarily duplicating treatments rendered elsewhere on the Web.

When you begin research using primary materials (collections, archival material, interviews) and secondary sources (books and online information), themes emerge that can be used to build the story and online presentation. Think of the subject areas as doorways that invite a user to pass through and explore. What will they see? How will they interact? What will they be able to read?

### EXPERT ADVICE

The ease with which users can find the page they want is one of the two most important determinants of Web usability. The other is content!

Themes also help to drive the architecture and the navigation design and development. When you develop the Web architecture and navigational plan, you are mapping out the structure of your story.

There are many stages in a project when it can be valuable to gather information from your target audience(s). Now that you have fleshed out your themes and story line, and charted them on a navigational plan, do some research with representatives of your target audience groups before writing and selecting materials. Handbook section 2.5, *Evaluating Your Product in Development*, provides details on how to conduct surveys and focus group research.



## Technical Considerations for Content Selection

A variety of factors need to be considered when selecting content that will most effectively present your themes and messages online. Keeping in mind the audience(s), the project goals and your museum's mandate, the content should weave your messages and story together in a compelling way. Selections can also be affected, at least in part, by practical considerations.

### Questions to ask when selecting content:

- Have you secured the rights to the content or set the process in motion?
- Will you be creating original text and illustrations?
- Do you have access to existing audio and video, or will you produce it?
- If you are presenting artefacts or works of art, how many objects will you use?
- Do you have material in digital format or do visuals have to be converted to digital format?
- How will your content choices affect your budget and schedule?

If you are working with partners, they may be involved in selecting content. If your partner is another museum, work closely and consult each other during the selection process, especially when working with two or more collections. Choosing materials for interpretation on the Web raises a number of issues. Consideration also needs to be given to how to present content on the Web page. Working with the opportunities, stay within the limitations of the medium and let your content drive the layout.

## EXPERT ADVICE

The Web is an attention economy, where the ultimate currency is the users' time. Online content must give the users something they want or they will quickly go to another location.

### Screen settings

Users set their own so you cannot control their selection. However, you can do research to determine the most common setting used. In May 2002, more than half of Web users set their screens at 800 x 600 pixels.<sup>16</sup>

### Display colours

Use only Web-friendly colours, and remember that many users have less than perfect vision. For example, when you choose your colour palette, avoid red-green combinations and red type, both of which can be difficult to see.<sup>17</sup>

### Screen real estate is limited

Always remember to leave a little space when designing Web pages for a specific screen size. Don't set margins at 0. For example, a page viewed at a screen resolution of 800x600 should have a width of 750 pixels. The white space this creates can set off your content effectively.

## EXPERT ADVICE

Select your content judiciously! Excessive use of animation or audio and video clips might detract from your messages and communication goals.

## Creating a Storyboard

Creating a storyboard for your project can be extremely helpful, although it is not necessary for every project. If you decide to create storyboards, make sure that each team member has copies or ready access to them.

An informative storyboard can be created in basic HTML, so that it can be transferred easily among team members. The storyboard will also be helpful for focus group studies and online testing.

Storyboarding is used in various types of productions: cartoon animation, motion pictures, virtual exhibitions and interactive game development. A storyboard can be useful when planning a *Flash* presentation because it allows a designer and creative director to create the design and the flow of screen changes, before the complex work of full design and programming begins.

A storyboard can also be a detailed description of all elements in the final product, such as information on graphics, video, sound, text, interactivity, colour, font, and navigation buttons. A storyboard details each and every occurrence on each screen throughout the Web product.

### Details included on a storyboard:

- a sketch of the screen
- colour and graphics
- text
- narration
- animation
- video and audio
- other interactive features
- hyperlinks
- button placement (back, forward, home, contact us)

## Interpretation and Writing for the Web

Because people use the Web differently than physical exhibitions, books or magazines, effective online communication requires specialized interpretive and writing skills unlike those employed in other media.

Although Web-based interpretive approaches must adapt to the limitations of the online environment, they can also take advantage of the opportunities available there. For instance, virtual visitors may not be able to walk around and touch an object, but they can explore the object by interacting with its image in various ways. You can create interactivity by allowing visitors to “rotate” an image, or to zoom in on it to magnify details invisible to the unaided eye.

When it comes to writing for the Web, knowing how language works online is also essential. The following style and format guidelines are useful for writing text that effectively communicates your messages and themes to Web users.

### Tell me, quick!

Do you remember speed-reading? “Double your reading speed! Increase your comprehension!” Those courses were designed to turbo-charge your reading rate. Web users today may not have taken speed-reading lessons, but they practise some of the techniques. Looking for content clues in titles and headings, reading the opening line of each paragraph and zeroing in on key words and phrases are all part of the process that Web users have adopted to sift quickly through the countless sites and pages on the Web.

## Reading and scanning

Web writers need to know that Web users often scan until they find something of interest. Their eyes sweep quickly down the page, picking up a heading here, a keyword there, a prominent block of text or an eye-catching caption, until they land and linger on content that captures their attention.

The graphic style of many Web pages, combining text with images, borders and boxes, makes it even easier for Web users to practise this glance-and-scan technique. Some Web sites even make effective use of poetry and prose that is sparse and evocative, both of which can work effectively with well-chosen images or graphics. The key is to use language that is appropriate to your topic and audience, and whose immediacy captures the reader's mind and heart.

## Writing Great Web Content

- Put the most important information at the top. Give those speedy scanners the information they need, right from the start. Use the first few lines on your page to make your most important points and summarize your content.
- Use headings to tell your story. Communicate the essence of your content in titles, headings and sub-headings. Craft your titles with meaningful and precise keywords that provide strong clues to the full text of the paragraphs that follow.
- Use bulleted lists to communicate a series of related items or ideas. Use bulleted words, phrases or sentences to instantly communicate reasons, examples, questions or any content that can reasonably be presented in a series. Bulleted lists make it easier to search for specific information.
- Summarize each paragraph in the opening line. Lead page content and keyword headings provide the skeleton of your material. Now start adding some flesh, but pay careful attention to the first line of each paragraph, because if you don't, the reader may not get any further. Follow the example of news writers who use the "inverted pyramid" style. Present conclusions first, followed by details and background information.
- Convey one idea per paragraph. A good rule of thumb is to make the word count of an online topic about half the word count used when writing for print. Limit each paragraph to an average of two or three sentences, and limit sentences to an average of fifteen words. Take the time to do further research into how users read on the Web.<sup>18</sup>
- Be bold. Make strategic use of bolding, emphasis and other typeface variations to direct attention and emphasize key points. Enlist the help of your graphic designer to give your text some added zip and directional capacity.
- Consider putting key ideas in captions, boxes, and graphics. Extract a quote, highlight a tip or put a frame around a fact.
- Use hypertext links to expand your ideas and support your credibility. You can even hyperlink to deeper content in your museum collections. Or reference your text with carefully selected, reliable hypertext links to Web sites that support what you say or provide additional relevant information. Keep in mind, however, that more hyperlinks can lead to more maintenance responsibility. Links need to be checked frequently to ensure their validity.
- Adopt a simple, friendly tone. The Web is an intimate, one-to-one communications tool. Avoid formal, jargon-heavy language. Maintain a natural flow of information and ideas in a logical and sensible sequence.
- Shorter is not always better. Web users may scan quickly, but they still want solid information. Once you've covered all your bases—keyword headings, summary sentences, highlighted facts and bulleted lists—take the space you need to convey your content.

## EXPERT ADVICE

Many search engines use lead content to look for relevant keywords and pertinent phrases, and then rank your online product accordingly. So weave your most important keywords into your opening content! But remember that Web users also pay most

attention to the top of the page. Do not get so carried away that you spoil the tone and flow.

## Copyright Clearance and Intellectual Property

Copyright clearance of any and all material placed on the Web is crucial. Canada and several other nations have copyright and intellectual property laws that you need to understand and follow.

Unless all of the content to be used in your online project is originally created by the production team, you need appropriate copyright clearances. And regardless of whether you are dealing with content created by others or your own project team, the new intellectual property you are creating also needs to be protected.

Copyright law protects intellectual property. Intellectual property can be literary, dramatic, musical and artistic works, and sound recordings. It even extends to the underlying programming code of your online product. Photographs are classified as artistic works under the *Copyright Act*. In the case of audio or music, the rights of the performer, record producer, and copyright holder, have to be cleared.

Copyright also includes moral rights. Moral rights belong solely to the author of a work and exist independently of copyright. The purpose of moral rights is to protect the honour and reputation of an author. Even after copyright has been assigned in a work, moral rights remain with the author. Moral rights cannot be assigned in Canada, but they can be waived.

Copyright and intellectual property are complex subjects that require further reading. Check the Canadian Heritage Information Network (CHIN) Web site for information on intellectual property. CHIN has developed *Protecting Your Interests*,<sup>19</sup> *Capture Your Collections*,<sup>20</sup> and *Licensing Images: Checklist for Museums and Other Cultural Organizations*<sup>21</sup> for your assistance. *Artefacts Canada*<sup>22</sup> also provides a useful copyright issues section, with information on moral rights.

It is important to allow sufficient time and to budget for the necessary copyright clearances.

### Copyright notice

A copyright notice should be included on all Web pages, reflecting the year in which the content was created, such as on the CHIN Web site: © 2002 Canadian Heritage Information Network.

## Opportunities and Limitations: Technology Choices

New options and technology choices constantly surface on the World Wide Web (WWW). And, while a new development may enable you to communicate more effectively with your audience(s), or interact with them in new ways, it may also introduce a new set of limitations that will have to be assessed.

### Some questions to ask when considering technology options:

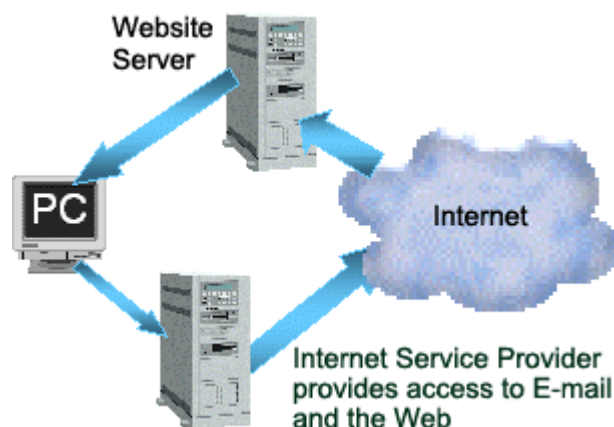
- Do you plan to sell merchandise on the Web or use it for fundraising?
- Is a database an effective way to store and present the content online, rather than static pages?
- Are you using *Flash* programming, which may require a plug-in, but will add movement and sound to your Web presentation?
- Does your target audience have trouble with larger multimedia files?
- How can you create multimedia content that is accessible?

### Bandwidth

The growing availability and plummeting cost of bandwidth means that more and more Canadians are able to access the Internet at higher data delivery rates. This makes it more viable to include certain types of content (data files with images, audio, video, animation) today than it would have been two or three

years ago. In this rapidly-evolving medium, you may soon have even greater freedom to include larger and possibly more varied data files. Even so, bandwidth availability remains a prime consideration that affects your choice of content and delivery methods.

### Figure 12: Bandwidth



Bandwidth showing the transfer path

#### Data rates and bandwidth

Computers store all information as binary numbers. The binary number system uses two binary digits, 0 and 1, which are called bits. The amount of data that a computer network can transfer in a certain amount of time is called the bandwidth of the network and is measured in kilobits per second (kbps) or megabits per second (mbps). A kilobit is one thousand bits; a megabit is one million bits. A dial-up telephone modem can transfer data at rates up to 56 kbps; DSL (high-speed telephone) and cable modem connections are much faster and can transfer at several mbps. The Internet connections used by businesses often operate at 155 mbps, and connections between routers in the heart of the Internet may operate at rates from 2,488 to 9,953 mbps (9.953 gigabits per second). The terms *wideband* or *broadband* are used to characterize networks with high capacity, and to distinguish them from narrowband networks, which have low capacity.<sup>23</sup>

## 2.3 Multimedia Content Treatment

It is important for the project team to review the multimedia choices made during the planning phase of the project, and to decide on the next phases.

### Digitizing Content

A basic understanding of file sizes, compression and file types for images, audio and video will help you determine the best online solutions, given your project goals and the needs of your audience(s). *Capture Your Collections*,<sup>24</sup> gives detailed instructions for those interested in learning more about photographing, scanning and cataloguing images of collections.

One option for digitizing images is to do it in-house. If your institution does not have digitizing services, you will need to acquire the necessary hardware and software.

One of the first steps in digitization projects is to decide upon the contents or objects to be digitized. The types of materials selected for digitization will determine the imaging equipment to use. For some items,

the use of a digital camera may be more appropriate than a scanner, whereas a scanner may be better suited for capturing other objects. Most two-dimensional objects such as photographs, prints, drawings, etc. can be digitized using a flatbed scanner. A digital camera can capture both two- and three-dimensional objects. Another option is to use a traditional camera to capture images of two and three-dimensional objects on film, and then to digitize the film images or slides with a flatbed or slide scanner.

When shopping for a flatbed scanner, look for a scanner with a cold-cathode light source.<sup>25</sup> Most scanners come with "lite" graphics manipulation software. However, the more you pay for a scanner the better the quality of the graphics software included. For example, if you are producing a publication you may need more sophisticated image editing software such as Adobe Photoshop. Complete a requirements assessment for your project and then conduct a comparison assessment of scanners and cameras (digital or traditional) to identify the hardware and software required and to ensure that they also meet your requirements, technical specifications and budget.

For large digitization projects, more than one scanner and software program may be required. Whenever people working in-house use several pieces of technology, it is important to maintain consistency and establish internal standards. For example, images may appear different when viewed on different monitors. Calibration is the process of adjusting your monitor's color-conversion settings to a standard, so that the images displayed on a variety of monitors will look the same. The ideal method is to use monitor-calibration hardware and accompanying software available with CMS (Colour Management Systems).

## EXPERT ADVICE

Would you like to create 3D images, or a virtual tour of specific rooms in your institution, with *QuickTime VR*? Since this is not a standard plug-in, and the content can be time-consuming to download, you may want to include this feature as an optional section of your online product.

## Assuring Good Design

As stated earlier in this handbook, having a graphic designer on the team who has experience working with online content facilitates the development of a good design. Provide the designer with information about the target audience(s), project goals, navigational plan, Web architecture, and the amount and types of content that are to be included.

### Making an impression

Imagine that your product is finished and that you have completed an interactive game or virtual exhibition. Imagine people seeing and using it for the first time, and then describing it to a friend. What words would you like them to use?

- playful
- innovative
- professional
- edgy
- beautiful
- earthy
- intellectual
- challenging
- academic
- colourful

If you can communicate the mood or impression that you want to create for a user, your choice of words will assist your designer in the creative process of selecting colours, fonts, graphics and layout for your online content. A good designer needs guidelines but should be left with some freedom to bring creativity to the project.

The graphic designer should provide a couple of mock-ups of the design layout to give an idea of the look and feel of the product. Following discussion and a review of the design options, modifications are made and a final design is agreed upon. Once the modified version is approved, the graphic designer can start building the layered graphic files that become the design template for your online heritage product.

### **File formats**

There are many file formats, depending on the software being used—BMP, TIF, PCX, EPS, PCT (Mac), PNG, PSD, GIF, and JPEG to name a few. GIF and JPEG are the two main graphic file formats used on the Web. Refer to the glossary for more information on file extensions and formats.

## **EXPERT ADVICE**

When using video or other large files, you can help users predict the response time by indicating file size next to file name.

### **GIF, JPEG and the Web**

GIF stands for Graphic Interchange Format. GIF was developed specifically for online graphics. It supports a maximum of 256 colours and is best used on images with sharply defined edges and large, flat areas of colour. Text and line-based drawings usually fall into this category. GIF uses compression to make files smaller for rapid transfer over a modem. GIF is a lossless format, meaning that it does not discard information to save space. But converting an image with thousands or more colours to 256 colours is a change that requires the loss of some colours, and will therefore result in decreased image quality. GIFs have basic format characteristics. An image can have more than one of these characteristics, for example, be interlaced and transparent.

- **Non-interlaced:** you must wait until the entire image loads before you see it.
- **Interlaced:** the image loads in poor quality, and gets progressively better over time.
- **Transparent:** you can make any colour within the image transparent.
- **Animated:** a sequence of still images, much like a traditional cartoon flipbook. When the series of images is played back in sequence an animation effect results.

JPEG (also JPG) stands for Joint Picture Experts Group. This format is usually used for larger graphic elements, such as photographs. JPEG is a lossy compressed format that is common on the Web. When saving in this format you choose a quality setting. The higher the quality, the lower the compression and the larger the file size. JPEG's compressed format is ideal for high colour photographs and is used as the stock format in many of today's digital cameras.

### **Image file sizes**

Working in the electronic environment, file size is always an issue that needs to be considered and managed. For Web and multimedia delivery, the file size of a scanned image is the major issue.

To keep your visitor's interest, it is recommended to keep the total size of your Web page under 50 KB (this is the total of all elements on the page including images and animation). This will ensure your page will load in under 10 seconds with a 56 K modem.

### **File size factors:**

- The physical size of an image (width and height) affects file size.
- The number of colours (typically between 256 to 16.7 million) affects file size.
- Image resolution, measured in dots per inch (dpi), affects file size.
- File format capabilities (e.g., GIF forces a max. of 256 colours; JPEG allows compression) ultimately affect the size.
- Image compression (e.g., JPEG has a number of compression choices) changes file size.

**File size advice:**

- If an image file is still large after optimization, it should be organized into slices. Software such as *Adobe Image Lab* or *Macromedia Fireworks* can be used for image optimization.
- Use WIDTH="" and HEIGHT="" in the <IMG> tag to specify the image size. By setting these attributes, you are reserving space for that image to load, and the browser does not have to refresh the screen once the images are loaded. (No text or information will load in that area even if the image never loads.)
- Do not use WIDTH and HEIGHT to resize an image, only to specify its actual size.
- Avoid unnecessary use of icons, graphics and photographs, except for titles. Avoid using images to display words in special fonts; it is better to code font changes into your HTML, using <B>, <I> etc., rather than create images of the words.
- Instead of using large full-size graphics images on your page, insert a thumbnail in the page and link from the thumbnail version to the larger image. Indicate the full image size (in kilobytes and megabytes) and the file format, so the user knows the file size and type before loading the full-size image.
- Re-use images where possible. Once an image has been loaded, it can be loaded quickly each time it is called in the HTML document. Each HTTP request requires additional time for the browser and server to deliver the image, unless the same cached image is reused on the Web page.

**Compression**

The JPEG file format allows for varying degrees of compression. Be aware that this is lossy compression. This means that once you compress a file with the JPEG format, the information removed to perform the compression can never be reclaimed. For this reason, it is important to save a copy of the original scan in case you need to make changes later.

While monitor resolution (e.g., 640 x 480, 800 x 600) is measured in picture elements (pixels), graphic image resolution is expressed in dots per inch (dpi).

When scanning images for your project, you can scan them at 300 dpi if you intend to archive them or use them for print. However, you should reduce the resolution to 72 dpi for your on-line project. Images are normally displayed at 72 pixels per inch on a computer monitor, using images of greater resolution only increases the file size.

**Digitizing audio and video**

The quality of your source material is very important. If the quality is poor when you start, it will sound or look worse when compressed and streamed. It is important to work from the highest quality source material available.

**EXPERT ADVICE**

Hearing-impaired users can be supported by the use of video captions and transcripts of audio files. These text alternatives must be in HTML to make the content more accessible to search engines.

**Audio**

There are two main ways to digitize audio. You can record sound by connecting a microphone directly to your computer through the microphone input. This method can pick up background sound, so check for quality when you play it back. The other recording option is to use a microphone and record onto a cassette recorder or into a digital recorder.

After making a recording on cassette, you digitize the audio by connecting the line output of the recorder to the line input on the sound card of your computer. If your audio is on videotape you can also connect the audio outputs from the VHS or digital tape deck into the line input on the sound card.



## EXPERT ADVICE

Audio is very useful in teaching users the pronunciation of words.

To digitize audio, you need audio editing software, which enables you to set recording levels as you digitize and create sound files. You can also use it to enhance the quality of sound files.

### Video

When digitizing video, you will usually begin with a videotape source. There are two types: analog and digital. Your video material needs to be captured and transferred from the videotape to the hard drive of your computer. To perform this transfer, you need special hardware and software. The process of capturing, digitizing and editing video files is much more technical than working with audio only. The video files are very large, and there are choices to make regarding the size of the playback window and video quality. These choices include presenting higher quality video, which will mean a larger file size for streaming download, or higher compression, which will ensure smaller files, but poorer quality video when played online. You would do well to contact someone with experience in working with video on the Web.

## EXPERT ADVICE

When presenting a longer video, break it into segments, with subject headings, so the user can download and play the video content that is of specific interest.

## Current and Emerging Web Technologies

To put the current and emerging technology comments in context, please note that this handbook was written in 2002. It is important to keep up with developing Web and Internet technologies, as well as the World Wide Web Consortium's (W3C) recommendations and international accessibility guidelines (see section 2.4, *Technical Possibilities*, for more information on the W3C).

Ensure that you include links to Web sites that offer free software programs users can download to view your online content. *Adobe Acrobat* and *QuickTime* are two examples of such software.

## EXPERT ADVICE

Experimenting with current Web technologies provides you and your team with an opportunity to learn something new and your Internet audience with a unique experience.

### Flash

*Flash* is a very good way to create fast-loading animation clips, but it is a difficult program for the casual Web designer. *Flash* is often used as an animated introduction to online content. *Flash* introductions are interesting the first time, but repeat users often click on the "skip intro" button to get into the content as quickly as possible. That is why a more effective way to use *Flash* can be to integrate it with the content of a virtual exhibition.

Some sites are all *Flash*, which prevents a site from being indexed by search engines and makes a site very difficult to register. These sites need a separate HTML site, at additional cost, so that search engines can find them. If you have someone on the team who is experienced with *Flash*, by all means use it, but use it judiciously.

### **Flash with QuickTime video**

You can add custom playback controls and subtitles to version 4 and above of *QuickTime* videos using *Flash*. The *Flash Player* is built right into the *QuickTime* player, and you can create interactive *QuickTime* presentations right in the Flash-authoring environment.

Video can also be incorporated into Flash in all video formats played by *QuickTime* and *Windows Media Player*, including MPEG, DV (Digital Video), MOV (QuickTime) and AVI. *Flash MX* allows you to manipulate, scale, rotate, skew, mask, and animate video objects, and make them interactive using scripting.

### **Shockwave**

*Macromedia Shockwave* allows you to make movies for the Web. *Macromedia Director* is the software required to create a *Shockwave* movie, converted for playback in a Web browser. Users need a plug-in (*Macromedia Shockwave 8 Player*), which they can download and install free of charge. *Director* is an expensive software application and has a steep learning curve. Speak with professional developers about your Web plans to determine the most appropriate approach for movies, games and interactivity.

## **EXPERT ADVICE**

The *Macromedia Shockwave Player* and *Flash Player* are pre-installed on all new PCs and Macintosh computers (January 2002).

### **Streaming Webcasts**

These are used for live events, and require a microphone to capture the presenter's voice and a video camera to capture live images. A specially configured computer is required at the event location to capture all of the media sources (audio, video, *PowerPoint* slides) and immediately convert them to a streaming format. This computer either acts as a streaming server itself and broadcasts the material over the Web, or it connects over a network to a streaming server for Web distribution.

## **EXPERT ADVICE**

When choosing what technology to use in your project, do not be afraid of experimenting with something new. Create an area within the online product in which to use this technology, so you can be innovative without risking the entire project.

## **2.4 Technical Possibilities**

### **Technical Needs**

If you are considering in-house Web-based development, you will first need to conduct thorough research on your in-house computer and software capacity. You will also need to decide where you will store your product in development, either on an in-house server or through a Web hosting company. One option is to purchase a server for your institution, although this is only recommended if the museum can predict high online traffic, or needs to secure a large number of files. This location can also serve as the production area where members of your team can share files via FTP. If you are working with a multimedia team, they can be consulted to provide you with the best option for the size of your final product. Uploading digitized material onto the World Wide Web is analogous to installing objects in a physical exhibition. The appropriate materials and an understanding of the installation process are essential.

You may decide that it is less expensive to contract an outside multimedia specialist than it would be to upgrade your computer system. On the other hand, you may decide that your computer system can handle the development process and that you do indeed have in-house personnel skilled in Web-based design and development.

Technical requirements for processor speed, memory and storage space are determined by software requirements. These requirements in turn are determined by the type of work to be completed. Always check the technical requirements of the software you intend to use. Software requirements indicate the technical requirements. Generally, the more graphics or image-intensive the task, the greater the processing speed, memory and storage space you will need.

## **EXPERT ADVICE**

A dedicated computer for the Web development process is an excellent idea. This ensures that all the graphics, text and programming files are stored together and that you have sufficient computer power to complete the project.

## **Design Considerations**

Every method and program you employ to design your online product has advantages and limitations. Here are some recommendations to help you work within these considerations.

## **EXPERT ADVICE**

A general rule of thumb is to keep navigation to about 20 per cent of the page and content to 80 per cent of the page.

### **Page layout**

The key to successful design is clear and understandable navigation. Strike a balance between the need to present all of the navigation options to the user and keeping the pages uncluttered.

The two most commonly used browsers are Internet Explorer (IE) and Netscape, with IE being more widely used. To meet the needs of most Web users, your online product must be viable in both browsers, and in IBM-compatible as well as Macintosh platforms.

Your Web layout should be intuitive, inviting and easy to follow. Think of creating a template to be used throughout the Web product. This will save valuable production time when adding the content.

Consistency from page to page for the placement of a menu bar and use of colours, simplifies user navigation. It is advisable to use Cascading Style Sheets (CSS) to maintain this consistency. CSS are also easily updated in future Web projects. See Style Sheets later in this section.

### **Fonts**

Your choice of text fonts is very important. Headings and titles can be created with graphics, so this is where you can be a little more creative. It is best to use no more than three different fonts, one for the header, one for the sub-heading and another for the body. For content, choose a medium-sized font that is legible. It is best to select from True Type Fonts (TTF), like Arial, Helvetica and Times Roman, which are delivered with most computer systems. You can choose to leave the font unspecified and accept the default of the user's browser. This means content will work on all systems. Or you can include a list of possible fonts in your style sheet. The browser will pick and display the first available font on the list.

## Frames

Frames provide a way to display several pages at once. In a typical example, a frame with overall site navigation will remain static and provide access to various content pages. Generally, frames are being used less often in Web design because they can have an impact on accessibility (discussed in section 2.4, *Technical Possibilities*).

### Some limitations of frames:

- Many browsers cannot print frame pages appropriately.
- Search engines have a hard time indexing pages in frames.
- If people bookmark a page, they may not see the same page when they click on the bookmark the next time because the bookmark does not include a representation of the state of the frames on the page.
- In order to make your Web product as accessible as possible, you need to title frames according to international standards. Be sure to use text prompts that let visually-impaired users know about a new window.

### Some positive aspects of frames:

- Frames can be useful for maintaining navigation and keeping it visible as a user scrolls down a page.
- If the frame remains the same over several pages (e.g., top and left-hand navigation), the page will load faster, as only the page content is changing.
- In a large online product, a universal change to a frame (e.g., a logo or navigation button that appears on all pages) can be made once and applied across all pages.

## EXPERT ADVICE

A general rule is not to exceed 65 to 80 characters across the width of the page for text display.

## Graphics

Graphics create that vital first impression. Keep in mind, however, that response time is also part of that first impression, so keep the file size small!

Managing file sizes can be as simple as saving photographs in a JPEG format, but design elements should be saved as GIFs. Please refer to section 2.3, *Multimedia Content Treatment*, for more about GIFs and JPEGs. Compression is maximized when the proper formatting is used.

Always keep in mind the goals and objectives of your online product. If you are developing a multi-use online product, then keep animation and introductions to a minimum. If, however, you are developing a feature in a virtual exhibition that the user visits only once, you have an opportunity to be more creative with your presentation. Try not to get caught up in trends. For instance, in the Web's early days, a lot of flaming and animated logos were featured. Such effects become outdated relatively quickly.

## Style sheets

The World Wide Web is the ultimate cross-platform system, so your pages may be displayed on a wide variety of devices. A style sheet is a set of explicitly defined rules governing the presentation features of a document. With Cascading Style Sheets (CSS), the cascading comes from the way the style sheets are applied to the elements in the document.

For example, a style sheet can define the length of a line of text and the width of the page margins. It can specify that all text should be green, and that the first line should be indented. It is best to have the style specifications written in one place only, and then applied across all specified pages. Any changes to specifications will then be made across all pages. This saves time and maintains the continuity.

## Meta tags

Meta tags are key words and phrases included in HTML page code. Of all the possible meta tags (and there are many), the "keywords" and "description" meta tags are important to search engines, which index meta tags.

When placing the meta tags in your Web pages, use contents of description to summarize the main theme of the Web page or section and expand the theme or message in the title tag. The first sentence of the description is the key to capturing user interest. Some search engines display the first 20 to 30 words contained in the meta tag description after the title of the document. It is therefore important for each Web page or section to have a different description and for this description to relate directly to the information contained within the page.

Meta tags go in the <HEAD> section of the HTML page (the same section as the <TITLE> tag). Figure 13, *Meta Tags*, shows how descriptive these tags can be.

**Figure 13: Meta Tags**

Meta Tags With Data	
Description Meta Tag	<b>&lt;META name="description"</b> <b>CONTENT="</b> You are about to discover many of the stories and treasures held in trust by Canada's Museums. Select a gateway and journey into our rich and diverse heritage." <b>&gt;</b>
Keywords Meta Tag	<b>&lt;META name="keywords"</b> <b>CONTENT="</b> Canadian, museums, art, gallery, exhibit, exhibition, attraction, cultural, heritage, gallery, collection, tourist, event, festival, culture, zoo, aquarium, botanical, garden, directory, travel, historic, site, map, fort, education, guide, heritage, information, network, Canadiana, Canada, find a museum, museum web sites, History & Society, Arts & Leisure, Science & Nature, Transportation & Industry, postcard, film, activity, lecture, learning, pedagogy, teaching, studies, students, teachers, lesson plan, curriculum, shopping, gift, shop, keepsake, virtual, game, kids, children, fun, quiz, multimedia, production, image, sound, Virtual Museum of Canada, Virtual Museum Canada" <b>&gt;</b>

English Meta Tags in the Metadata of the *Virtual Museum of Canada* home page.

Search engines vary in the amount of text they will read in a <META> description. The description text should be limited to less than 100 words. When selecting these important "description" and "keyword" meta tags, keep the Web product's goals and users' needs in mind. When choosing keywords, think of what, where, when, why and who.

Although meta tags are used by some search engines to index and rank Web pages, more and more search engines are looking at other factors for indexing, such as keyword density and links to your Web product. When devising meta tags, it is therefore important to remember to consider the needs of your users, and not just the search engine requirements.

For more details on how to register your online product with a search engine, turn to section 3, *Getting Ready to Launch*.

## Standards and Guidelines

Many large organizations have set standards for Web design within their organization so that visitors entering any page of the organization's Web site will recognize it and know where to find certain

navigation elements, such as Search, and Contact. An example of very specific standards can be found for Government of Canada Web sites at the Treasury Board of Canada's *Common Look and Feel for the Internet Web page*.<sup>26</sup>

**These kinds of standards usually specify:**

- screen resolution (for example 800 x 600 pixels)
- placement and size of logo
- standard navigation to be included, such as Contact or Search
- style guidelines for fonts, colours and other design elements

If your organization has not yet established Web standards, find out if there is a style sheet for print. If so, consult it to provide a consistency of look and feel across your institution's various types of communications. Keep in mind that such guidelines should be followed for style, not for technical specifications. If your heritage organization has either a municipal, provincial or federal affiliation, follow their guidelines for Web-based communication.

## **Accessibility Issues**

You can provide more equitable access to your online product by taking a number of concerns into account. If your pages address accessibility issues, you can display the Web Access Symbol. This symbol, which is available from the National Center for Accessible Media,<sup>27</sup> can be used to identify Web sites or pages for which an effort has been made to enhance access for disabled users.

### **Visual disabilities**

Blind or visually impaired users can listen to text pages reasonably easily if they have access to a screen reader that reads aloud through a synthesizer. Users with reduced eyesight typically need larger fonts, a standard feature of most Web browsers. To support them, use relative font sizes rather than encoding information with absolute font sizes. For example, when using style sheets, instead of setting the font size attribute to a specific number of points or pixels, set it to a percentage of the default font size. By doing so, your text will grow or shrink as the user issues "text larger" or "text smaller" commands, and the initial appearance of the page will match the user's preferences.

The colour of text should contrast with colours used in the graphics or backgrounds. Failure to maintain sufficient contrast makes it difficult for users, especially those with visual impairment, to read your text.

Texts in different languages should not be put on the same Web page. Specialized screen readers cannot move from one language to the other. When using a table, remember when incorporating content that the screen reader will read the top row from left to right, and continue reading across each of the following rows.<sup>28</sup>

### **Hearing disabilities**

When featuring video and audio files, provide text of the audio component so that users who have a hearing disability have an option to read through the narrative.

## **EXPERT ADVICE**

A good source of information on adaptive technologies is the Adaptive Technology Resource Centre (ATRC). Open to anyone interested in learning about assistive technology, the ATRC offers regular drop-in hours, during which you can try adaptive technologies, or discuss ideas, questions, or solutions with ATRC staff. For more information, please consult the contact information included in the endnotes.<sup>29</sup>

### **ALT attributes**

In addition to making your text legible, you can also offer an alternative method for displaying your images to people who cannot see them, either because they are blind or they have turned image loading off. They will be able to see or hear the alternative text (ALT). A title or brief description of the image is all that is required. HTML code is used to insert an image that has the ALT description into a page.

### **International accessibility guidelines**

The World Wide Web Consortium (W3C) is an international regulatory body of Internet technology experts and interested organizations that develops standards and guidelines for the Web. Certain guidelines specifically address the issue of making Web content accessible to people with disabilities. You can test your online product in development against these guidelines on the W3C Web site.<sup>30</sup>

Each checkpoint has a priority level assigned by the working group based on the checkpoint's impact on accessibility. W3C has outlined three levels of priorities (required, recommended and optional) for Web content developers.

The guidelines are available in English<sup>31</sup> and in French.<sup>32</sup> You can make your online product better by familiarizing yourself with the guidelines and implementing at least some of the recommendations. You also give more people the opportunity to enjoy your online product.

## **2.5 Evaluating Your Product in Development**

### **Sample Versions and Prototypes**

A sample version shows samples of content, graphics and navigation. It may not have the pages linked and functions working as a prototype would.

A prototype is a working model that incorporates the look and feel of the product as a whole.<sup>33</sup>

#### **A prototype includes:**

- look and feel of the product and the navigation
- graphic style
- samples of the content
- samples of the flow of the story through branching points
- samples of other unique and special features that will be part of the Web product

The earlier in your production schedule that you can create a prototype to use for testing, the better. It can be much more cost-effective to implement recommendations while the production is still in progress than having to modify the completed work.

### **Testing and Quality Assurance**

As the project manager, you set quality standards for the production team, and team members accept responsibility for ensuring their work meets those standards. All work should be tested before proceeding to the next steps.

#### **Some ways of testing your Web product:**

- Test on both IBM-compatible and Macintosh platforms.
- View the completed work in Netscape and Internet Explorer browsers.
- View the work in older and newer versions on both types of browsers.
- Do spelling and grammar checks.

- Do a links check.
- Test e-mail addresses.
- Test functionality of everything that has been developed.
- Check that the contents of Web pages load within ten seconds or less.
- Test your online product on various computers without a high-speed connection and on old hardware. Consider testing your Web product on a computer at a local library terminal or at home.

Once each team member has tested his or her own work and believes it is ready, the project manager or quality assurance manager should review and test the work again. This second test should take place when the files have been uploaded to the final hosting server where the product will reside. Differing versions of server software and hardware can have an effect on the end product. For instance, if a form or database was programmed in a specific programming language, you must ensure that the host server supports the same version of that language.

## Doing the Research—Focus Groups and Surveys

If your schedule and budget permit, it is recommended that you use either a focus group or an online survey to test your product with your target audience(s). This allows you to gather information about your target market, as well as specific feedback on your Web product while it is still in development. The hands-on experience immerses your audience in the product and is more likely to elicit more detailed feedback than an abstract interface or concept test.

### Questions to ask testers of the prototype:

- Do you find the design pleasing? Why?
- Do you find the navigation clear and easy? Why?
- Would you use the Search function of this Web product? Why?
- What keywords would you search on?
- Would you wait for the multimedia file to download?
- What do you find compelling about the layout?
- Would you change anything about the content?
- What would you add in the way of features or content? What would you change about the content?
- Do you find this easy to use? Why?
- Would you find this product useful (or valuable)? Why?

### Usability testing

Usability testing is another method of gathering information on your developing product. This involves having a user move around the tested Web product while under observation. In this case, you need to strike a balance between allowing the user a completely natural experience and moving them through the Web product to ensure critical areas are reviewed. To gather worthwhile data from a usability test, you need to do this with several participants.

### Online research

Because your product will be on the World Wide Web, the users testing it do not all have to be in the same place as they are for a focus group. Testers should be recruited by similar means to those used for the focus group. Because there is no moderator to take them through your Web product and record their responses, an online questionnaire or survey must be prepared.

To create a survey for online testers, compile a set of questions that require several “yes/no” and “more/less” type of responses to make it easy for respondents to make their selections, and to facilitate the compilation of results. You should also include questions that allow the user to write comments in an unrestricted comment box. A programmer should be able to devise an electronic survey form to capture the responses of the participants.



For online testing, a longer period of time should be allowed for completing the online survey. Five days or a week should be enough for the testers that have been recruited to find the time needed to test the prototype. In the introduction to the survey, communicate how long you think the user will need to spend reviewing the prototype and responding to the online survey.

An incentive is another option to be considered. For example, all completed surveys received before a certain date could be eligible for a free pass or some other thank-you gift.

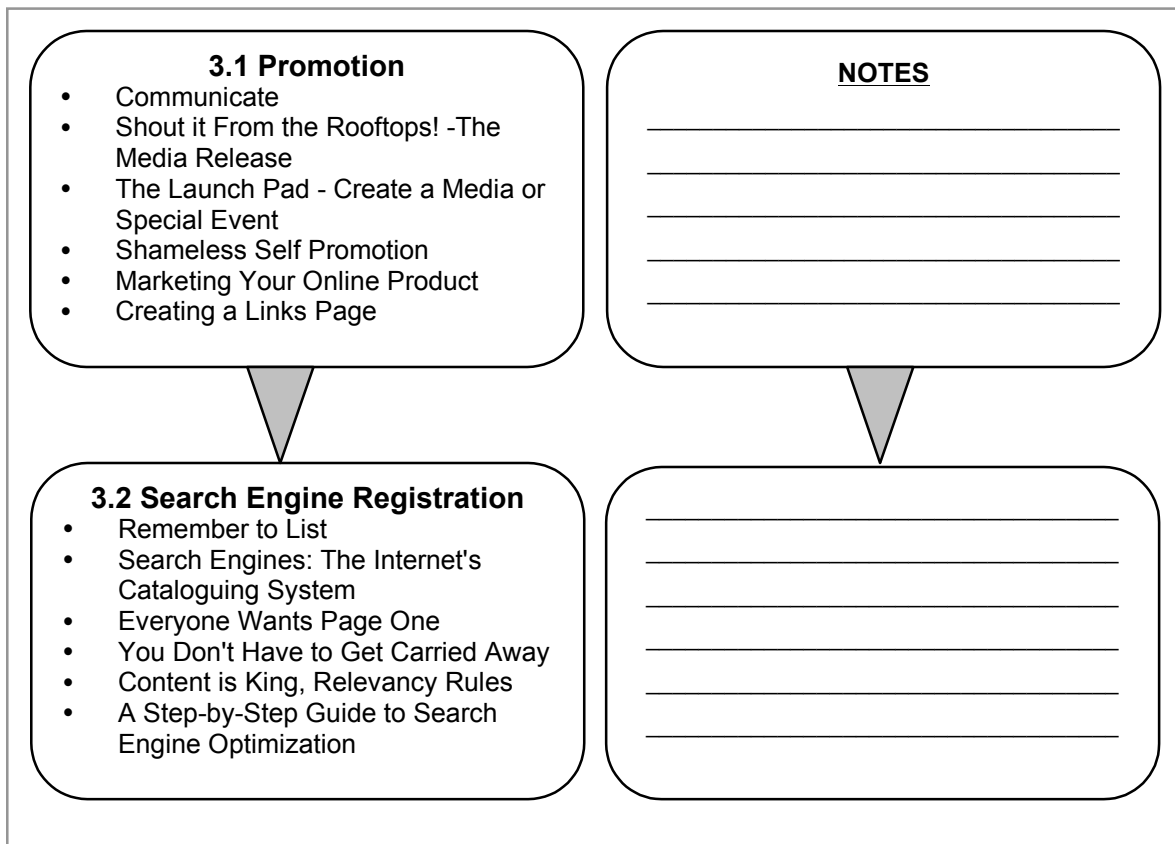
If it were a large sample, then a database to capture all of the results would be most effective. Determine whether your programmer is experienced in database design and programming. If the sample is small, less than thirty for example, then receiving the survey results in e-mail form will permit you to review the comments and tally the results manually.

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**Figure 14 : Getting Ready to Launch**



The key steps of Getting Ready to Launch.

## 3. Getting Ready to Launch

### 3.1 Promotion

Creating and implementing an effective communications plan for an online heritage product involves many strategies and techniques. The proven approaches presented here, with accompanying examples and ideas for success, may help you devise an effective communications plan of your own.

#### Communicate

Communications planning for the launch usually begins as the work on your product nears completion. If your institution has a communications department, it may want to take charge of the process or at least assist.

#### Shout it From the Rooftops! —The Media Release

The media are always looking for value-added content to print, broadcast and publish online. In order to help them spread the word about your launch, write a media release.

##### Writing media releases

Develop a headline to entice media representatives to read on, and to communicate an effective message about your product:

- **Effective**— “Virtual Exhibition Brings Pioneer Settlement to Life”
- **Not-so-effective**— “New Museum Virtual Exhibition”

Write in an easy-to-read style that briefly describes the product, including some highlights of your content, and other special features of the product. Include a quote that can be used in a newspaper story or community announcement.

#### EXPERT ADVICE

Remember to put a copy of the media release on your heritage organization’s Web site. And get the media release out to interest groups that are part of your target audience(s), by fax or e-mail.

Fax or e-mail your release to local and national media. Use directories that provide this kind of information; for example *Media Names and Numbers*, published by Sources, provides over 5000 contacts and 1000 organizations.<sup>34</sup>

##### Getting the word out cost effectively

Take full advantage of free community events listings in newspapers, regional magazines, and community radio and television. Remember to inform your colleagues, staff, and others in your institution, as well as the broader heritage community.

#### The Launch Pad—Create a Media or Special Event

A media event fixes a place and time to draw attention to your new product and celebrate the fruits of your hard work. You can have the launch coincide with a symposium or conference of interest to your target audience(s), to make sure that they want to be involved in the launch.

Have a product spokesperson conduct a demonstration and answer questions from reporters and others. Send a press kit to media ahead of time with some screen captures. If you want them to appear in a print publication, include a disk with some image captures.

### **Saving a screen shot**

Screen shots can be readily captured using the print screen button on your keyboard. Open notepad or an image editing software program and paste the screen shot into the program. These screen shots can be saved as a regular text document as part of your press kit, on a disk, or sent as an attachment.

## **Shameless Self Promotion**

**Submit your Web product to a variety of “What’s New” sites and “Hot Sites”, for example:**

- Add your product to the *Top 10 Links* Web site using express or basic submit.<sup>35</sup>
- *WhatsNu.com* search engine filters Web site listings and categories. The *Add URL* section allows you to submit a link to the appropriate category.<sup>36</sup>

Do research online and create a list of topically related Web sites that you would like to link to your new product. E-mail the site administrators your URL along with a short and catchy site description that could appear on the link page and attract visitors to your Web product. Indicate that you believe your content is of interest to their Web community, and that you would appreciate a link. When possible, request the addition of your logo or an image representative of the product. Offering to post a reciprocal link in your own product can encourage the site administrator to post your link. This exchange will also enrich your links page (see below, *Creating a Links Page*).

It is also recommended that you let Webmasters at other sites know about your museum’s guidelines on linking. Generally, links to your online product should lead to the main page and should not be framed within the content of another site. They should also clearly indicate that your institution provides the information being linked to. The more links to your online product, the higher the search engine ranking it receives!

### **The promotional give-away**

If your budget permits, consider a giveaway to promote your new product and online presence. A magnet, bookmark or mouse pad can be an effective way to get the word out. These are objects that people hang onto.

## **EXPERT ADVICE**

Online and offline use every opportunity to include the URL in as many places as possible: signage, business cards, programs, posters and contact information.

### **Give a little to get a lot**

Portals are sites that aggregate content into a one-stop-shop of Web destinations.

**Some examples are:**

- cbc.ca
- virtualmuseum.ca
- municipal sites
- provincial tourism sites
- local and national news sites
- chamber of commerce portals

Portals need to keep their content fresh, and they often welcome interesting heritage content. This can be provided to them electronically with a graphic or logo that links to your product. This provides the portal with fresh content and provides great exposure to your product, at no cost! Be sure to include this approach in your project plan.

Do you have e-mail addresses for other cultural institutions? If so, be certain to send an announcement e-mail inviting them to visit.

## **Marketing Your Online Product**

Advertising can be expensive, but if you have the financial resources, it guarantees that your product will get exposure in the media. Working within your budget, decide how, where and when you would best reach your target audience(s).

### **Some questions to ask when considering advertising:**

- Which media will we use to advertise? Print? Radio?
- If in print: newspapers or consumer or trade publications?
- Place banner ads on Web sites? Where? When? How Much?
- Are there Web sites or publications that reach our target audience(s)?

## **Creating a Links Page**

If you would like to link to outside sources, consider a links page. Creating a page for your links can make it easier to maintain them than if they are spread throughout your Web product. You can include one overall links page for your site or several pages organized by theme and linked to sub-sections. Be sure to maintain these pages by removing links that are no longer relevant or functioning (broken links). Your links pages should also include information that lets users know that the linked content comes from another site. It is recommended that you link to another Web site's home page unless you have an agreement to link to a specific page.

If you want to deep-link to content on other Web sites, you should send the Webmasters an e-mail, stating you would like to link to their site by a specific date. To ensure the link is properly established, ask the Webmasters to provide you with their site's conditions on linking, prior to the date mentioned in your e-mail. Finally, assure the Webmasters that you will provide complete accreditation, including the URL for the other Web site's home page together with your established link. These steps will help establish a good relationship with the owners of the site to which you are linking.

### **Ideas for your links page:**

- other heritage institutions
- partners
- sites on relevant topics or listing related resource
- groups and organizations
- municipal, provincial and national government sites

In return for including outside links on your page, request reciprocal links. Include your URL so that others can review your product online.

When linking to a Web site, have the link open in a smaller, second browser window. This prevents losing the user when the second browser window is closed. Be sure to use text that notifies visually impaired users of the new window.

## 3.2 Search Engine Registration

Since search engines are widely used, you should think about search engine registration when planning to inform the world how they can find you online.

### Remember to List

Launching your Web product without registering it with the appropriate search engines is like printing a book, then tucking it into a library shelf without telling the librarian. Browsers moving through the stacks may stumble upon it by chance, but it will not show up in the card catalogue.

It will take a couple of weeks following registration for your site to be listed with the search engines. Before registering, ensure that your Web product is working at its intended URL, such as [www.museumname.ca](http://www.museumname.ca).

When your virtual exhibition, interactive game or other online heritage product is live (no longer password protected on a development server) you can:

- register and have the official launch a few weeks later; or
- have the launch and register with the understanding that it will take a few weeks before your product will be showing up on the search engines.

### Search Engines: The Internet's Cataloguing System

There are hundreds of versions of cataloguing systems on the Web - directories compiled by people, indexes and databases assembled by spidering robots, speciality subject indexes, and indexes of indexes. They provide ways to search and find information. Most search engines do not provide the criteria by which they catalogue or search, so that people cannot gain unfair advantage when registering their site.

Search engine spiders, or robots, visit or crawl through Web content by reading a page and then following links to other pages within the site. The spider returns to the site on a monthly or bi-monthly basis. Everything the spider finds goes into the index, or database, creating a giant library that contains a copy of every Web page the spider has found. The search engine uses ranking software to sift through millions of pages recorded in the index to find matches to a search and rank them in order of what it believes is most relevant.

### Everyone Wants Page One

From the perspective of visibility, high rankings on search engine result lists are important, particularly if you are selling products, marketing information, or publicizing places, events or issues through your Web product.

#### Consider these facts:

- Searching is the second most popular Internet activity next to e-mail.
- Most Web users do not look beyond the third page of search engine listings; many do not look beyond page one.

With an average of 500 million Web pages indexed by each major search engine, having your Web product appear on the first page is a tall order. It helps to have a narrow niche—a specialized topic, a geographic focus—that limits the competition for your ranking. In most other cases, getting listed on page one—or even page five or fifteen—can be a challenge.

## **Buying into top search engine rankings**

Increasingly, site owners wishing to guarantee optimal search engine rankings have paid for top positions in the search results of every major search engine. “Featured Listings” and “Sponsored Links,” which appear first in search results, are a form of paid online advertising. They result when site owners bid on key words or phrases they wish to appear, and agree to pay a designated amount for each time a Web user clicks on their listing. The cost of the listing is related to the popularity of the search term, and may range from a few cents to several dollars per click. Pay-per-click search engines share their listings with all major search engines.

Aside from pay-per-click, another form of paid listing offered by some search engines is the paid for inclusion listing. These services offer inclusion of the link in an index and are usually priced per-URL for a fixed time period. Paid listings appear quickly, provide high visibility and are particularly suited to commercial sites marketing specific products or services. Most major search engines continue to accept submission of non-commercial sites at no charge. Nevertheless, cultural and other non-commercial sites may wish to consider this approach for targeted public relations campaigns, special revenue-generating projects, or whenever high visibility is crucial.

## **You Don’t Have to Get Carried Away**

The competition-related secrecy of search engine ranking criteria and algorithms has spawned an entire industry of professional Search Engine Optimizers, who try to second guess the major search engines, and achieve high rankings—and big profits—for their mainly corporate clients.

But unless you have a commercial site and a high-profile product with an international market—not to mention deep pockets—leave the fancy optimization footwork to the big players and rely on common sense to design Web content that is search engine-friendly.

## **Content is King, Relevancy Rules**

After years of cat-and-mouse games between search engines and savvy programmers, a clear trend is emerging:

### **Search engines tend to give prominence to Web products with:**

- good content that delivers what it promises;
- easy navigation within the site; and
- links from good, content-related sites.

## **A Step-by-Step Guide to Search Engine Optimization**

- 1 Before writing your Web text, identify the key words and phrases that are related to your content. Remember the point is to ensure good flow, but try to think like a Web user: include popular, practical words that are likely to be searched.
- 2 Pay special attention to the text that first appears on your Web pages, and most importantly, the text that first appears on your home page. This is the text that will be spidered first by a search engine, which is what determines your initial listing. Some search engines may even use this text as the site description in search engine listings. Further “spidering” of other pages in your site may not take place until the search engine re-visits your Web product.
- 3 Design a content-rich Web product that is logically organized, uncluttered, and easy to navigate.



- 4 Draft a short HTML <TITLE> tag for each page of your product describing what the page is about, clearly and concisely, using your most important keywords. (Rule of thumb: up to 75 characters.) This <TITLE> appears as the clickable title in a search engine listing and in the title bar of the Web user's browser. Example: <TITLE>Inuit Culture: Canadian Inuit</TITLE>
- 5 Draft an HTML <meta name= "keywords" content=> tag for each page of your Web product that lists the key words and phrases that appear in the content of the page, placing the keywords in order of importance. (Rule of thumb: some sites may list up to 100 keywords; 10 to 20 are probably sufficient.) Example: <meta name="keywords" content="Inuit, Inuit Culture, Inuit, Eskimo, Eskimos, Eskimo, Eskimos, Arctic Territory, Inuit Territory, Inuit language, Eskimo language, syllabics, syllabic characters, Inuit hunters, Eskimo hunters, Inuit food, northern food, harvest studies, Inuit families, Inuit communities, Inuvialuit, Nunavut, Sedna, Kayak, Peter boat, self government, animal rights, country foods">
- 6 Draft an HTML <meta name= "description"= content> tag for each page of your Web product, summarizing the main theme of the page and expanding the message in the <TITLE> tag. Some search engines will use the contents of this tag as the description in search engine listings. (Rule of thumb: maximum of 100 words. May be limited to display of the first 20-30 words.) Example: <meta name="description" content="Inuit Culture: A site devoted to the Canadian Inuit. Learn about the language, economy, family life, and history of this 5,000 year old culture.">

Use relevant keywords for your HTML file names (with the exception of index.html or main.html). Use relevant names for folders as well. Look at Web sites with similar content that places high in search engine results. Look at their metadata to develop your own. Consider approaching owners of related sites to exchange reciprocal links. Some search engines give an extra ranking boost to products that have attracted links from other popular sites.

When your Web product is launched and functioning optimally, submit your index page to all major search engines. Trying to follow the submission steps included in the Web sites of individual search engines can be both time-consuming and limiting. Consider using a reputable, fee-based, online search engine submission service that will submit your product's URL, contact information and meta tags to hundreds of search engines and directories. Most submission services operate on a subscription basis, re-submitting your Web product at regular intervals for a fixed time period (for example, every 45 days for 2 years). Some search engine submission services are free.

## **EXPERT ADVICE**

When choosing keywords to weave into your Web product title, meta tags and text, you may want to verify the word(s) in a free "Current Bid" tool of a pay-for-placement search engine. This will measure the popularity of your search term. The higher the bid, the more popular the word or phrase.

### **Give your search engine ranking a boost:**

- Buy your own domain name, and place it on a respected, reliable paid hosting service.
- Choose a domain name that includes your most descriptive key word or phrase.
- Avoid slow-loading index pages, as the spider may time out before it finishes indexing.
- Do not "SPAM." Avoid excessive use of keywords, inappropriate or irrelevant keywords or hidden text.
- Use plain text links instead of, or in conjunction with, graphic buttons to link pages within your Web product.
- Include ALT attributes for images, containing the relevant keywords.

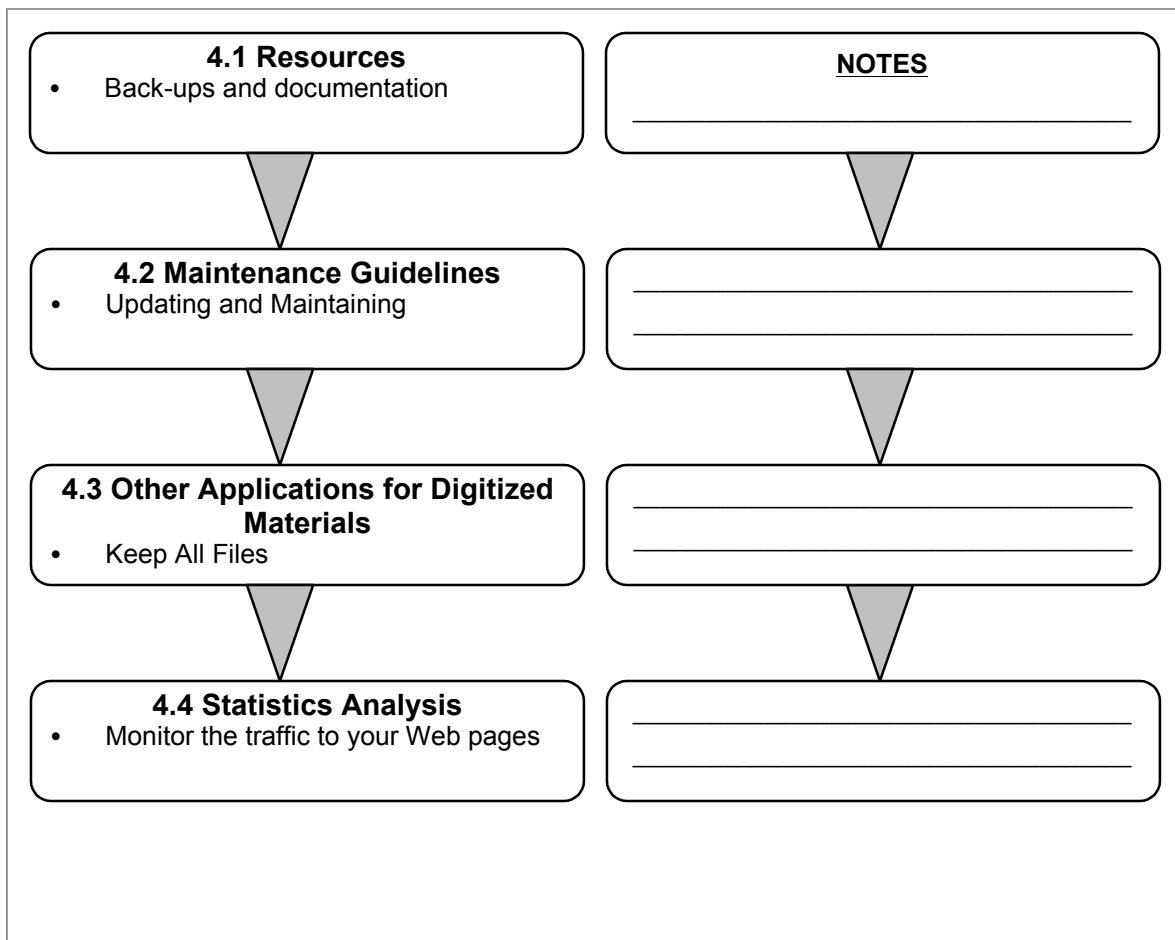
Your heritage product is now online!

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**Figure 15: Product Maintenance**



The key steps of Product Maintenance.

## 4. Product Maintenance

Whether your online heritage project was developed with partners or completely in-house, you need to consider maintenance issues and how you intend to update your information. A maintenance schedule can help you update on a regular basis and also ensure that the Web product is functioning properly.

Some of your maintenance decisions will depend upon the type of online product you have. Some types of Web products need only a minimal maintenance schedule. Other types, however, require frequent changes. Regular content updates are necessary if you want to attract return visits.

### 4.1 Resources

#### A backup copy

During your production process and once the online product is complete, be sure you have all the files backed-up, ideally on a CD, as well as tape and hard drives. If anything happens to the host server, such as a crash or virus, you will be able to restore your online product very easily.

When updating or changing your online product, always keep a copy of the original file. Make the necessary updates or changes to a copied file and then upload the new changed file to the Web. If for some reason this process fails, you can go back to the original file.

If you will be updating frequently, establish a monthly or bi-monthly backup schedule that copies your Web product onto a CD. If you update infrequently, your product should be backed up in its entirety following every change or update. Once you have determined the frequency of changes, and the time needed to respond to feedback and questions, assign these duties to someone.

#### Documentation and Materials from Developers

At the end of the production, ask your developer to provide you with a file that contains the programming documentation and a CD with all of the programming and graphic files. Be sure this is well-labelled and kept in a secure place. You may never need it but if you do, it should be close at hand. These files will be useful if you are adding content in a future phase and wish to maintain the same look and feel. Having the original layered graphic files saves time.

The planning documents, including the storyboard and schedules, should be kept on file within your institution. It is important for the project manager to record and relay what has been learned from the process. Staff members should be briefed at the conclusion, as the project manager's final thoughts will no doubt add to everyone's understanding of how to produce online heritage products.

Before you finally sign off on the product, double check that all copyright clearance details have been implemented as agreed during the project planning and development phases.

### 4.2 Maintenance Guidelines

Your Web presence can be dynamic, including new features and information from time to time.

#### Ways to proceed with updates:

- To draw attention to additions or updates, consider creating and using a special icon.

- If content is updated frequently, you may wish to include a “what’s new” notice to show what is new.
- If there is an FAQ (Frequently Asked Questions) section, be sure to add new questions and answers from time to time.
- If you include an area for discussion or a bulletin board as part of the product, users can add new content with each comment. The institution should act as administrator of such a forum to make it possible to delete or edit posted comments.
- Is there a links section? Add new links when you come across a good resource that is relevant. Remember to check the links frequently to make sure they are still valid.
- Always review your changes and updates. Care was taken during production and the launch of the product. You want to ensure quality is maintained with all content updates.

## **EXPERT ADVICE**

The popular link asking visitors to “E-mail us your comments and suggestions” is probably the most widely used form of qualitative research; it will help you maintain, adjust and, if you wish, add to your product.

## **4.3 Other Applications for Digitized Materials**

One of the benefits of digital content is that it can be re-used in other types of media. Images that have been digitized at a sufficiently high resolution are now part of a collection that you could re-use to prepare materials like an annual report or a marketing poster.

The Canadian Heritage Information Network (CHIN) Web site<sup>37</sup> provides resources that you may find of interest, especially if you plan to use your digital content in alternative media.

### ***The virtual display case: making museum image assets safely visible***

This study explores the issues related to the management and protection of images in a network environment. It analyses various technical options for protecting digital imagery such as watermarking, encryption and digital signatures. It also discusses a variety of rights management systems. It includes a checklist that identifies and discusses key issues to be addressed in a licensing agreement between an institution and someone who wants to use gallery images and/or information when creating a commercial or consumer product. The study is updated periodically on the CHIN Web site.

### ***Like light through a prism: analysing commercial markets for cultural heritage content***

This report analyses established and potential commercial markets. Five different North American market sectors are examined: broadcasting, publishing, multimedia, corporate and advertising. Each sector is assessed in terms of the positioning of intellectual property and the service standards required to meet market demands.

## **EXPERT ADVICE**

Technological change can lead to problems in working with files created using older technologies. Also, computer files themselves deteriorate over time. The deterioration is abrupt. One day the files are readable, and the next they start degrading rapidly. It is important to keep backup copies and always do data transfers in a way that keep data intact.

## 4.4 Statistics Analysis

Monitor the traffic to your Web pages to determine the popularity of your online product and its individual sections. This involves requesting detailed statistics from your Web host. Refer to Figure 16, *Statistics Definitions for Online Products*, which defines the terms used to gather information about the popularity of your online product.

**Figure 16: Statistics Definitions for Online Products**

Term	Definition and description
Hits	<p>The retrieval of any item, such as a page or a graphic,<sup>38</sup> from a Web server. For example, when a user calls up a Web page with four graphics, that results in five hits, one for the page and four for the graphics. Saying there were "56 hits" on a page means that there were 56 separate requests.</p> <p>Once a leading metric, hits are now generally considered unreliable as a measurement method for Web use because a single graphic-heavy Web page might measure 100 or more hits every time it is accessed.<sup>39</sup></p>
Page Views (a.k.a. Page Impression)	<p>Describes how Web pages are accessed. A page view differs from a hit because it counts only the number of times a page has been accessed in its entirety; whereas a hit counts the number of times any elements in a page, including graphics, have been accessed.<sup>40</sup> In other words, the page view is a count of the number of times Web pages are presented to visitors. Home pages generally get more page views than other Web pages.</p> <p>It is important to note that page views have become more difficult to gauge, since frames divide pages into separate sections.</p>
Visit	<p>A visit normally corresponds to a single person moving through your online product.</p> <p>Reporting software that tracks and counts Web traffic can measure the number of visits. A visit is defined as a sequence of requests to a Web server, all made from the same Internet Protocol (IP) address, having the same agent string, and with no gap between requests of more than 15 consecutive minutes. So, if a user accesses your content and starts clicking through it, this is counted as a visit. Say, for example, the user's browser becomes idle for more than 15 consecutive minutes, either because the user received a phone call or was interrupted by something and momentarily stopped clicking through your Web product (sending requests to the Web server). If that user resumes clicking through your product after this 15 minute-plus break, this new sequence of requests is counted as a second visit.</p>
Visitor (a.k.a. Unique Host and/or Unique Visitor)	<p>Reporting software that tracks and counts Web traffic can also identify how many "unique visitors" visited the site during a fixed time frame, typically a 30-day period. Unique visitors are measured according to their unique IP addresses (which are like online fingerprints) and are counted only once within a defined time period, no matter how many times they visit.<sup>41</sup> This method of reporting is limited in its accuracy as many IP addresses are assigned dynamically. This means that one person could have a different IP address each time they visit.</p>
Sources	Definitions used in CHIN's Web site reporting software called <i>Summary</i> .

## 4.5 Conclusion

There are several ways to manage the production of online content. The approach presented in *Producing Online Heritage Projects* is intended to serve as a framework and to give you an overview of a process that can be applied in various ways. We hope that this handbook has provided you with helpful information and useful advice.

This tool could not exist without collaborative efforts from the heritage community. We would like to know what you think of the handbook and to invite you to share your experiences in working with online projects. Your input will help us to build on this resource, based on your needs.

*Producing Online Heritage Projects* is the first of many publications in the works to assist heritage institutions in the development of online content. As Web technologies evolve and markets change, CHIN will provide assistance to heritage institutions well into the future.

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## **Appendix—Project Manager’s Tools and Templates**

- A. Sample Planning Research Focus Group Evaluation Questionnaire**
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- D. Project Budget Template**
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# Appendix A

## Sample Planning Research Focus Group Evaluation Questionnaire

### Proposed Product: Interactive Game on Trains

These questions were prepared as part of the production research during the planning phase. They are targeted at youth aged 9-12 years (grades 4-6).

#### The Topics

1) Have you ever taken a train?

- Yes  No

2) What comes to mind when you think of a train? You may indicate more than one option.

- trip  vacation  transportation of merchandise  locomotive  
 landscape  mechanical  rail  toy

3) From the following topics, which one would you like to explore? You may choose two topics.

- How a train works: today and in the past  
 Trades related to the train in Canada  
 To find out about the people who participated in building the railroad  
 The history of railroad construction in Canada  
 Architecture of the train station and the stationmaster's house, etc.  
 Other: \_\_\_\_\_

#### The Games

4) From the following four games, which do you like the best?

- www.existing-game-website1.ca  
 www.existing-game-website2.ca  
 www.existing-game-website3.ca  
 www.existing-game-website4.ca

Why do you like it the best?

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---

5) From the same four games, which do you like the least?

- www.existing-game-website1.ca  
 www.existing-game-website2.ca  
 www.existing-game-website3.ca  
 www.existing-game-website4.ca

Why don't you like it?

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## Sample Planning Research Focus Group Evaluation Questionnaire (continued)

### The look of the game

6a) From the following games, which one do you like because of the pictures?

- www.existing-game-website1.ca
- www.existing-game-website2.ca
- www.existing-game-website3.ca
- www.existing-game-website4.ca

6b) What do you particularly like about this site?

- the characters
- the colours
- the font
- the sound

7) View this site: [www.existing-game-website4.ca/introflash](http://www.existing-game-website4.ca/introflash)

View the *Flash* version then the HTML version. Which of these do you like better?

- Flash*
- HTML

### General Information

8) Are you:

- a boy?
- a girl?

9) How old are you? .....

10) Do you have a computer at home?

- Yes
  - No
- If you answered no, go to question 13.

11) Do you have an Internet connection at home?

- Yes
- No

12) If yes, what type of connection do you have?

- Cable
- High Speed Telephone
- Modem
- I don't know

13) Why do you use the Internet?

- games
- homework
- to chat
- e-mail
- other: specify

14) Have you ever visited the "Name of Museum" Web site?

- Yes
- No

If you answered no, go to this address: [museum-website.ca](http://museum-website.ca) then click on "sample section from museum Web site."

15) Would you return to "Name of Museum" Web site for fun?

- Yes
- No

16) What is your favourite Internet game? \_\_\_\_\_

17) What is your favourite CD-ROM game? \_\_\_\_\_

# Appendix B

## Sample Planning Research Focus Group Evaluation Recorded Responses

Twenty-two children took part in the focus group, at [School Name].

### The Topics

Fifteen children have already taken the train as opposed to seven who have not.

Trains brought up in the minds of the children:

- trip for 21 of them
- vacation for 13
- transport merchandise for 11
- locomotive for 7
- toy for 6
- landscape for 5
- rail for 4
- mechanical for 1

### Themes that the children wanted to explore were:

- How a train works: today and in the past for 16 children
- The history of railroad construction in Canada for 14
- To find out about the people who were involved in building the railroad for 7
- Architecture of the train station and the stationmaster's house, etc. for 6
- Trades related to the train in Canada for 5;
- One of the children said: "How to drive a train"

### The Games

The favourite game for 21 of the children is [www.existing-game-website1.ca](http://www.existing-game-website1.ca).

They said the following:

- "For the animation and the design."
- "Because it has a lot of games and I like the colours and how the characters were done. And also because we can visit it."
- "Because there are more games, and it's fun because you can visit the town, and the colours."
- "Because there are more games and ping pong was fun."
- "There are more things and it's more fun. There are things we know like Astérix, Sabrina, and there are characters."
- "I liked the animation, the characters. I liked that we had two choices."
- "The colour and the pictures."
- "Because there was a lot more animation."
- "It's nice, it's fun. The pictures are neat."
- "It's really well done! The colours are perfect."
- "The colours."
- "It's really cool!"
- "Because there's a lot of stuff for teens and I like the colours."
- "Because I find it's more animated and there's more to choose from."
- "The games, the colour and the animation."
- "It was fun because the others were boring."
- "Because the pictures were really cool, so were the characters and there were a lot of neat games."

- “There were lots more animated stuff and colours.”
- “Because there are lots of things to do and it’s easy to understand.”
- “Lively animation and colour.”

The least liked game for **16 of the children** is [www.existing-game-website2.ca](http://www.existing-game-website2.ca).

**They said the following:**

- “It didn’t have anything interesting.”
- “Because there weren’t any games and it was boring.”
- “Because it didn’t have as many games as the others.”
- “There’s just one game and it’s boring.”
- “There weren’t any games.”
- “It was the least fun and there weren’t very many colours.”
- “Because there wasn’t as much animation.”
- “Too many words but it’s OK anyway. It needs more games.”
- “Boring, too many words.”
- “Because the games were boring.”
- “There’s not much there.”
- “Because it’s boring.”
- “Because I’m not interested in stars.”
- “There wasn’t as much animation and there weren’t a lot of games.”
- “It wasn’t very exciting.”
- “Because we didn’t have fun.”

**The “Look” of the Game**

The favourite site 1 in terms of pictures for 13 of the children is [www.existing-game-website3.ca](http://www.existing-game-website3.ca); [www.existing-game-website4.ca](http://www.existing-game-website4.ca) came in second with 7 children.

**For the [www.existing-game-website3.ca](http://www.existing-game-website3.ca), what they especially liked is:**

- the characters for 10 children;
- the colours for 11;
- the font for 2.

**For the [www.existing-game-website4.ca](http://www.existing-game-website4.ca), what they especially liked is:**

- the characters for 5 children;
- the colours for 6;
- the font for 1.

Ten children preferred the *Flash* version of [www.existing-game-website4.ca](http://www.existing-game-website4.ca) as opposed to six who preferred the HTML version. Six children did not answer the question.

**General Information**

The group was made up of 9 boys and 11 girls. Two children did not answer this question. The children’s ages were 11 (14 children) and 12 (6 children). Two children did not answer this question. Nineteen children have a computer at home as opposed to two who do not. One child did not answer this question.

Out of those 19 children, 18 have Internet access. Fourteen have high-speed or cable access. Four answered that they did not know what type of connection they had.

**The Internet is used for:**

- games by 18 children
- E-mail by 18
- chat by 16
- homework for 10.

**Four children mentioned something else:**

- research
- science
- downloading
- assignments

Two children have seen the “Name of Museum” Web site, but 19 children are not familiar with it. Six children said that they would be interested in returning to the “Name of Museum” Web site, as opposed to five children who indicated that this was unlikely. Eight children did not answer the question.

**Favourite sites:**

- bonus.com
- java.game.play
- bubble
- tumyeto
- gamies.com

**Favourite CD-ROMs:**

- Tony Hawk
- Age of Empire
- NHL 2000
- The Sims
- Sabrina the Teenage Witch
- FIFA Soccer
- Tag
- Commando
- Hockey
- Diablo 2 Exemption

**Summary**

- 1 Fifteen children have already taken the train as opposed to seven who have not.
- 2 Themes that the children wanted to explore are:
  - how a train works: today and in the past for 16 children;
  - to find out about the people who participated in building the railroad for 14.
- 3 The favourite game for 21 children is [www.existing-game-website1.ca](http://www.existing-game-website1.ca).
- 4 The least liked game for 16 children is [www.existing-game-website2.ca](http://www.existing-game-website2.ca).
- 5 The favourite site in terms of pictures for 13 children is [www.existing-game-website3.ca](http://www.existing-game-website3.ca).
- 6 The favourite version of [www.existing-game-website4.ca](http://www.existing-game-website4.ca) is the *Flash* version.
- 7 Nineteen children have a computer at home, and out of these 19 children, 18 have Internet access.
- 8 Internet is used for:
  - games by 18 children;
  - E-mail by 18.

# Appendix C

## Skill Set Checklist

Skill Sets	Checklist	Need to Know	Nice to Know
<b>Writing/Interpretive skills</b>			
	Can write to meet audience needs		
	Communicates interpretive concepts		
	Translation—multilingual adaptation		
	Educational material		
	Effective communicator—understands medium & audience		
	Ability to interpret content		
	Clear, meaningful and intriguing language		
<b>Graphic design skills</b>			
	Design principles		
	Graphics/images		
	Page layout		
	Graphic tools or applications		
<b>Programming skills</b>			
	HTML		
	DHTML/XML(advanced level of HTML)		
	Java/JavaScript		
	Development of software applications		
<b>Computer skills</b>			
	Platforms/operating systems		
	Naming conventions		
	File management		
	Move between software products		
	Troubleshooting		
	Web technology and standards		
<b>Organizational skills</b>			
	Map the content		
	Coordinate tasks and steps		
	Foresight—see issues and plan solutions in advance		
<b>People skills</b>			
	Strong communication		
	Leadership and mentoring		
	Positive feedback		
	Proactive decision-making		
	Problem solving		

The *Skill Set Checklist* shows necessary and possible skills in an online heritage project.

# Appendix D

## Project Budget Template

### Budget

<b>Project Title:</b>	
Executive Producer:	
Project Manager:	
Technical Lead:	
Head of Content Development:	

<b>Milestones:</b>	
Project Planning & Hiring	
Project Development	
Evaluation and Testing	
Launch and Promotion	
Further Maintenance	

### Costs

	Proposed Cost	Actual Cost	Difference
<b>Management Team:</b>			
Executive Producer			\$0.00
Project Manager			\$0.00
Head of Content Development			\$0.00
Head of Web Development			\$0.00
<b>Development Team:</b>			
Content Specialist(s), Researcher(s) and Writer(s)			\$0.00
Editor			\$0.00
Web Designer, Programmer, or Multimedia Company			\$0.00
Voice-over Narrators, Translation			\$0.00

Photographer			\$0.00
Consultant (specify), Additional Training, Marketing			\$0.00
Legal Counsel			\$0.00
Accountant/Bookkeeper			\$0.00
Evaluation and Focus Group Testing			\$0.00
<b>The Content:</b>			
Image and Sound Rights			\$0.00
Additional Ancillary Devices			\$0.00
Stock Footage Audio/Music (transfers)			\$0.00
Original Source Material (video, data, etc.)			\$0.00
Stock Footage Picture (transfers)			\$0.00
<b>Equipment:</b>			
Digitization and Scanning Equipment			\$0.00
Computer Workstations (specify)			\$0.00
Software Licences (specify)			\$0.00
Sound Effects			\$0.00
Additional Data Storage Devices			\$0.00
Server Expense			\$0.00
Additional Software			\$0.00
Additional Maintenance			\$0.00
Additional Supplies and Materials			\$0.00
<b>Launch and Promotion:</b>			
Launch Expenses and Search Engine Registration			\$0.00
Media Kits			\$0.00
Other Promotional Material			\$0.00
<b>Other:</b>			
Office Telephone			\$0.00
Office Delivery			\$0.00
Travel Expenses (specify)			\$0.00
Insurance			\$0.00
Prototype Testing			\$0.00
Focus Group or Surveying Costs			\$0.00
Legal			\$0.00

The *Project Budget Template* shows possible budget considerations of an online heritage project.



# Appendix E

## Sample Project Plan Checklist

A clear project plan may include the following elements, attached to milestones:

	<b>1 Project Planning</b>
	<b>1.1 Defining the Project: Consider Business Plan Issues and Museum's Needs</b>
	Identify the Target Audience, Project Goals and Content
	<b>1.2 Craft the Concept: Research the Audience, Evaluate and Consider the Content</b>
	<b>1.3 Determining the Budget, Consider Cost-Saving Approaches</b>
	<b>1.4 Establishing a Production Schedule</b>
	Establish Milestones, Get the Team On-side, Complete the Proposal
	<b>1.5 Project Plan and Requirements, Plan the Production Process</b>
	<b>1.6 Building the Team: Define the Roles and Responsibilities, Hire the Team</b>
	Contact Potential Partners, Determine Roles, Responsibilities, & Copyright Licences
	Consider In-House Skills vs Outside Expertise
	Negotiating a Contract with a Multimedia Company
	<b>2 Project Development</b>
	<b>2.1 Production Process</b>
	Consider the Story Line: Plan Architecture and Navigation
	Content Development: Consider Interactivity, Multimedia, Writing, and Translation
	Register for a Domain name, Consider E-Commerce, Conduct Audience Testing
	<b>2.2 Complete the Story Line and Assemble Materials</b>
	Research Text for the Virtual Exhibition, Writing for the Web
	Select the Content, Develop Copyright and Intellectual Property Documents
	<b>2.3 Multimedia Content Treatment</b>
	Design Layout, Including Multimedia, Involve Web Developer
	Assure Good Design through Ongoing Audience Testing
	Digitization of Images, Audio and Video, for use in HTML or Emerging Technologies
	<b>2.4 Consider the Technical Possibilities</b>
	Gather Hardware & Software, Storage on Hosting Server and Bandwidth Restrictions
	Design Page Layout, Font, Frames, Graphics, and Style Sheets
	Determine Meta tags, Technical Standards and Guidelines
	<b>2.5 Evaluate Your Product in Development</b>
	Focus Group Usability Testing with Audience and Partners, Online Surveys

<b>3 Getting Ready to Launch</b>
<b>3.1 Promotional Strategies and Techniques</b>
The Media Launch: Media Release, Special Events
<b>3.2 Search Engine Registration</b>
Create a Links Page, Consider “Buying in” and Traditional Marketing Promotion
<b>4 Product Maintenance</b>
<b>4.1 Gather all Resources and Documentation from Developers</b>
<b>4.2 Develop Maintenance Guidelines</b>
<b>4.3 Use your Digitized Material</b>
<b>4.4 Analyse the Statistics</b>

# Glossary

**ADSL** — Abbreviation for asymmetrical digital subscriber line is a technology that allows for more data to be sent over an existing copper telephone line. ADSL supports data rates from 1.5 to 9 MBPS when receiving data (known as the downstream rate) and from 16 to 640 KBPS when sending data (known as the upstream rate).<sup>42</sup>

**ALT** — Abbreviation of alternative. Image tag attribute that specifies the text that will be displayed when graphics are turned off in a browser, if a browser does not support graphics, or if the user employs a text-to-speech synthesizer. Graphics on a Web page should always use an alternative (ALT) text attribute.

**analog** — Data representation in continuously variable physical quantities.

**application** — A program designed for the end user such as a database program, word processor or a spreadsheet.

**back-office application** — An application, which allows the user some access to manipulate some pages of his/her online product. Access can be password protected. For example to post press releases.

**bandwidth** — The transmission capacity of a communications channel; data speed measured in bits per second. A high-bandwidth network is required for fast transfer of multimedia files, since they typically contain large amounts of data.

**bit** — Abbreviation of binary digit. Elementary data unit that can have two possible values: 0 or 1.

**BMP** — Acronym for Bitmap. Standard image format on DOS and Windows-compatible computers. The BMP format supports RGB, indexed-colour, grey scale, and bitmap colour modes.

**bookmark** — A remembered address on the World Wide Web.

**browser** — A computer program that enables the user to read Hypertext in files or on the World Wide Web. Browser examples are Netscape and Internet Explorer.

**byte** — Abbreviation for a binary term, this is a unit of storage capable of holding a single character. On almost all computers, a byte is equal to 8 bits. Large amounts of memory are indicated in terms of kilobytes (1,024 bytes), megabytes (1,048,576), and gigabytes (1,073,741,824).<sup>43</sup>

**Cascading Style Sheets (CSS)** — A mechanism that simplifies adding style (e.g., fonts, colours, spacing) across multiple Web documents.<sup>44</sup>

**CD-ROM** — Acronym for Compact Disk Read-Only Memory. A form of write-once, disk-based, random-access data storage.

**client (*client*)** — Typically, a client is an application that runs on a personal computer or workstation and relies on a server to perform some operations. For example, an *e-mail client* is an application that enables you to send and receive e-mail.<sup>45</sup>

**compression** — An algorithm applied to a digital image to reduce its file size. Compression techniques are distinguished by whether they remove detail and colour from the image. Lossless techniques compress image data without removing detail; lossy techniques compress images by removing detail.

**database** — Collection of interrelated data stored on computer storage medium, organised to serve one or more applications and to be easily accessed.

**dHTML** — Abbreviation of dynamic HTML. Refers to Web content that changes each time it is viewed. For example, the same URL can result in a different page depending on any number of parameters, such as geographic location of the reader, time of day, previous pages viewed by the reader, profile of the reader.<sup>46</sup>

**digital** — Electronic technology that generates, stores, and processes data in terms of two states: positive and non-positive. Positive is expressed or represented by the number 1 and non-positive by the number 0. Thus, data transmitted or stored with digital technology is expressed as a string of 0's and 1's. Each of these state digits is referred to as a bit (and a string of bits that a computer can address individually as a group is a byte).<sup>47</sup>

**digital recorder** — Audio device recording sounds in a digital format. Recordings can be collected on DAT, hard disk or MiniDisc.

**digitization** — Process describing the creation of a digital representation of an original object or document.

**dithering** — A process in which software or an output device simulates continuous tones with groups of dots.

**download** — To transmit a file or program from a server to a client computer.

**DPI** — Acronym for dots per inch; measurement of the scanning resolution of an image or the quality of an output device. DPI expresses the number of dots a printer can print per inch, or that a monitor can display, both horizontally and vertically.

**DSL (Digital subscriber line)** — Technologies that use sophisticated modulation schemes to pack data onto copper wires. They are sometimes referred to as last-mile technologies because they are used only for connections from a telephone switching station to a home or office, not between switching stations.<sup>48</sup>

**encryption** — Process allowing conversion of computer data and messages to something incomprehensible by means of a key, so that it can be reconverted only by an authorized recipient holding the matching key.<sup>49</sup>

**EPS** — Abbreviation of Encapsulated PostScript file format. EPS files can be either binary or ASCII. The term EPS usually implies that the file contains a bit-mapped representation of the graphics for display purposes. In contrast, PostScript files include only the PostScript commands for printing the graphic.<sup>50</sup>

**file** — A collection of information, such as text, data or images saved on a storage device such as a disk or hard drive.

**file format** — A type of format for encoding the information in a data file. Some common image file formats include TIFF, JPEG, and BMP.

**firewall** — System designed to transmit authorized data packets only on a network and to prevent the transmission of unauthorized data.

**Flash** — Popular authoring software, developed by Macromedia, used to create vector graphics-based animations with full-screen navigation interfaces, graphic illustrations, and simple interactivity, resizable file format that is small enough to stream across a normal modem connection.<sup>51</sup>

**frames** — With regard to HTML, an area in a Web page that scrolls independently of the rest of the Web page. A Web page can be divided into multiple frames.

**FTP** — Abbreviation of File Transfer Protocol. Protocol used to transfer files from one computer to another through the Internet.

**GB** — Abbreviation of gigabyte; 2 to the 30th power (1,073,741,824) bytes. One gigabyte is equal to 1,024 megabytes.<sup>52</sup>

**GIF** — Acronym for Graphic Image File format, a widely supported image-storage format promoted by CompuServe that gained early widespread use on online services and the Internet. Resolution is limited to 8-bits, or 256 colours. GIF89a is a more recent format that supports interlacing.

**home page** — The Home page of an online product is seen as its starting place. Home pages generally get more traffic than any other page, so this page should hold key messages, introductory information about content, and comprehensive navigation for the Web product.

**HTML (Hypertext Markup Language)** — Language composed of a set of markup symbols or codes inserted in a file intended for display on a World Wide Web browser page. The markup tells the Web browser how to display a Web page's words and images for the user. Each individual markup code is referred to as an element (but many people also refer to it as a tag). Some elements come in pairs that indicate when some display effect is to begin and when it is to end.

**HTTP** — Abbreviation of Hypertext Transfer Protocol is a standard method of publishing information as hypertext in HTML on the Internet.

**hyperlink** — An electronic link providing access from one distinctively marked place in a hypertext or hypermedia document to another in the same or different document. Typically, you click on the hyperlink to follow the link.

**image capture** — Also referred to as digitization, is the process of creating a digital representation or image of an original through scanning or digital photography.

**interlaced GIF** — An interlaced GIF (Graphics Interchange Format) is a GIF image that seems to arrive on your display like an image coming through a slowly-opening Venetian blind. A fuzzy outline of an image is gradually replaced by seven successive waves of bit streams that fill in the missing lines until the image arrives at its full resolution.<sup>53</sup>

**IP (Internet Protocol)** — A standard format for transmitting data packets from one computer to another. It is used on the Internet and various other networks.

**Java** — A general purpose programming language that may be used to create enhanced experiences on the Web.

**JavaScript** — A scripting language typically used in Web browsers. (Not to be confused with Java).

**JPEG** — File extension for JPEG \*.jpg. JPEG Joint Photographic Experts Group. Common format for displaying images on the Web. JFIF (JPEG File Interchange Format) is the actual file format used to compress an image with the JPEG method that is a standard developed for still-image compression sanctioned by the International Standards Organization (ISO).

**KB** — Abbreviation for kilobyte. One kilobyte corresponds to 2<sup>10</sup> (1 024) bytes.

**Kbits/s (KBPS)** — Abbreviation of kilobits per second, a measurement of data transfer speed over a network.

**key** — A code or table permitting the conversion of encrypted data back to its original form.

**link** — See hyperlink.

**lossy compression** — A compression algorithm that reduces file size by actually removing data from the image. The most effective lossy-compression algorithms work by discarding information that is not easily perceptible to the human eye. Effective compression ratios of 10:1 to 50:1 can be attained.

**lossless compression** — Data compression technique that reduces storage space required for an image file without causing a loss of data. The compressed file can be easily restored to its original state. In most cases, lossless compression can reduce the file size by 50%.

**MB** — Short for megabyte. A megabyte is 2 to the 20th power (1,048,576) bytes. Bytes are used to describe data storage.<sup>54</sup>

**Mbits/s (MBPS)** — Abbreviation of megabits per second, a measurement of data transfer speed over a network.

**metadata** — Data about data, or information known about the image in order to provide access to the image. Can include information about the intellectual content of the image, digital representation data, and security or rights management information.

**meta tags** — Code used in Web page programming. Meta tags are not visible when a browser is viewing a Web page. The search engines, however, use the meta tags to categorize and classify the content of the Web page. Web masters use meta tags for better placement of their pages on the search engines.

**MHz** — Abbreviation for Megahertz. One MHz represents one million cycles per second. The speed of microprocessors, called the clock speed, is measured in megahertz. To a large degree, this controls how powerful the microprocessor is.<sup>55</sup>

**modem** — Modulator-demodulator. A device that converts digital signals to analogue signals and vice versa to allow communication between two computers or between a computer and a terminal through a phone line.

**OCR** — Stands for Optical Character Recognition. Technology that allows computers to “read” text from physical objects. OCR requires a graphical representation of text to interpret, which usually comes from a scanned image.

**operating system** — A program that controls a computer and makes it possible for users to enter and run their own programs.

**PC** — Short for Personal Computer, first produced by IBM.

**PCT** — An image file format developed by Apple Computer and commonly used in the Macintosh environment.

**PCX** — An image file format commonly used by IBM-compatible computers.

**PDF** — Short for Portable Document Format. A file format created by Adobe. PDF files must be read by Adobe Acrobat Reader.

**PhotoShop** — PhotoShop is a widely used image editing application from the company Adobe, often used as a benchmark for other imaging applications.

**pixel** — Short for picture element; the smallest unit that makes up an image. Each pixel can represent a number of different shades or colours, depending on how much storage space is allocated for it. Also used in measuring image size and resolution.

**plug-in** — A program that can be used with a Web browser. The browser recognizes a plug-in application automatically and its function is integrated into the main HTML file that is being presented. Among popular plug-ins to download are Adobe's Acrobat, a document presentation and navigation program that lets you view documents just as they look in the print medium.<sup>56</sup>

**portal or Web portal** — A Web site or service that offers a broad array of resources and services, such as e-mail, forums, search engines, and on-line shopping malls.

**PSD** — A file format created and read by PhotoShop.

**QuickTime** — Software allowing the creation and viewing of digitized sound and video on a computer.

**RAM** — Short for Random-Access Memory is a computer memory that provides the main internal storage available to the user for programs and data.

**resolution** — Spatial resolution, normally expressed as the number of pixels per linear unit e.g., 300 ppi (pixels per inch), sometimes dpi (dots per inch) or spi (samples per inch).

**screen shot or screen capture** — A captured picture of your computer screen. On Windows, a screen shot is captured by pressing the Print Screen key on your computer and then copying this screen shot to a document. On the Mac, press Command + Shift + 3.

**search engine** — A computer program that searches through large amounts of text and other data.

**server** — A computer or device on a network that manages network resources.<sup>57</sup>

**SGML** — Abbreviation of Standard Generalized Markup Language—a system developed to manage data by defining the relationship between the content of a document and its structure.

**specialized screen readers** — Voice output technology for text displayed in a Web page or other text documents.

**splash page** — An initial page used online to capture the user's attention for a short time as a lead-in to the product's home page. The splash page may tell the user what kind of browser and other software they need to go further, or frequently, offers a language choice if required.<sup>58</sup>

**spidering "robots"** — A search engine robot is called a spider and the action resembles the legs of a spider.

**surfers** — Internet users who surf (slang) or browse through the contents on the WWW.

**thumbnail image** — Small, low-resolution preview image, often linked to a high-resolution version of the same image.

**TIFF** — Tagged Image File Format is an image file format used extensively for the storage of high-quality images. The file extension for TIFF is "\*.tif".

**True Type Font (TTF)** — An outline font format developed in 1991 by Apple as an alternative to PostScript fonts. You can scale or size the type to almost any point size.

**TWAIN** — An acquired interface developed by a consortium of software developers as a standard for communications between scanners, imaging devices and now digital cameras and computer software.

**UNIX** — An operating system, or family of operating systems, developed by Bell Laboratories in the early 1970s. It is a powerful operating system.

**upload** — To transmit a file from a client computer to a server.

**URL** — Uniform Resource Locator is the address of a file accessible on the Internet. The type of resource depends on the Internet application protocol. Using World Wide Web protocol, the Hypertext Transfer Protocol (HTTP), the resource can be an HTML page, an image file, a program, or any other file supported by HTTP. The URL contains the name of the protocol required to access the resource, a domain name that identifies a specific computer on the Internet, and a hierarchical description of a file location on the computer.<sup>59</sup> On the Web (which uses the Hypertext Transfer Protocol), an example of a URL is <http://www.chin.gc.ca>.

**watermark** — Bits altered within an image to create a pattern that indicates proof of ownership. Unauthorized use of a watermarked image can then be traced.

**Web** — See World Wide Web.

**Web site** — A file or related group of files available on the World Wide Web.

**World Wide Web (WWW)** — A loosely organized set of computer sites that publish information that anyone can read via the Internet, mainly using HTTP.

**World Wide Web Consortium (W3C)** — A group of member organizations founded in 1994 that works to develop standards and otherwise enhance the World Wide Web.<sup>60</sup>

**XML** — Short for Extensible Markup Language, a specification developed by the World Wide Web Consortium (W3C). XML is a pared-down version of SGML, designed especially for Web documents. It allows designers to create their own tags, enabling the definition, transmission, validation, and interpretation of data between applications and between organizations.



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