

## CHAPTER 10 PROJECT MANAGEMENT

Digitization requires close management because of the rate of change inherent in digital projects, the complex nature of digitization processes, and the high level of training required of a digitization project's staff. In the technology domain, change and unpredictability are facts of life, and often represent opportunities rather than disasters for a well-planned project. Your management goal should be to create a flexible, adaptable system whose staff and procedures can accommodate change.

Any plan to digitize collections must consider the changes this type of endeavor will bring to the workplace – how this new set of tasks will impact the organization. Institutions and their administrators should acknowledge at the outset the long-term benefits of short term increases in training, equipment costs, and disruptions in routines. While equipment costs often draw the greatest attention at budget time, support expenses are usually greater and have more long-range implications for the institution. Even so, as anyone who has ever bought a computer knows, equipment is not a one-time expense. The rapid turnover in technology requires near-constant migration and upgrades. If an institution is to be successful at moving to a digital environment, it must learn early how to allocate resources for the long haul.

This chapter seeks to illuminate the myriad of factors that affect digitization project management and to identify methods for successfully addressing these issues.

Most successful digitization projects:

1. Define goals and objectives,
2. Establish a working staff/team,
3. Agree on a plan of action,
4. Agree on a timetable and end product,
5. Monitor project process,
6. Re-assess and revise goals as unforeseen situations develop, and/or
7. Control the process and the outcomes, and
8. Assess the outcomes/results.

Managers should work with other institutional administrators and boards to balance organizational expectations against strained resources, realizing an economy of scale. All involved must learn how to coordinate access issues with preservation issues and how to maintain currency while keeping costs in check. In most institutions resources are always overburdened, and moving collections toward digital access will not decrease this burden, but managers may find that redistributing the load can be both stimulating for workers and rewarding for users.

### **Human Resources**

A project's long-term success depends on the accurate assessment of the required human resources. Institution staff varies in their areas of expertise and different types of projects

require different skills. Most digitization projects in cultural institutions will require that the following task sets be addressed:

**Conservation:** A crucial aspect of any digitization initiative will be a conservation assessment of the analog materials. Under some conditions this may show that before some material can be digitized, it will require conservation intervention.

**Digitization/Encoding:** This can involve digital imaging, keyboarding, Optical Character Recognition, character or full-text encoding, or a combination of these.

**Metadata/Cataloging:** The creation of metadata records for the digital material is a specialized task. This work may also involve cataloging the analog material or searching for information to enhance the metadata record where it is absent from the analog version.

**Technical Development/Support:** This falls into two distinct areas: (1) the creation or implementation of specific IT solutions for creating, managing, delivering, or preserving the digital material, and (2) the provision of IT support for project hardware and software. This latter area includes workstations, desktop applications, network services, and capture devices.

In smaller institutions staff may carry out tasks in more than one area. For example, the digitizer may also handle technical development, or the project manager may take on metadata creation. A digitization project staff may include any combination of the following: advisory board, project manager, curatorial staff, archive staff, library staff, volunteers, interns, catalogers, systems analyst, programmer, web designer, or photographer. Above all, digitization projects involve a team approach, even if that team is very small. A variety of skills and expertise are required to execute a successful digitization project. Below are some tips for hiring new staff for a digitization project.

Staffing decisions are some of the most critical decisions managers will have to make when planning a digitization project. Whether the manager is hiring new staff or is faced with the re-tooling of existing staff, or both, the strategies are similar. When hiring, the possibility of identifying the specific skills required might be easier, but the applicant pool is generally a small one. Identifying specific skills within the existing staff can be challenging, but other variables such as work-habits and attention to detail may be easier to forecast.

Your institution's organization may make it possible for you to employ volunteers and student assistants or interns. Depending on their level of skill, these types of workers generally can provide assistance with cataloging, digital production, arranging and organizing, physical facility maintenance, specific research, and other similar tasks.

Contracted services can also be very useful for grant-funded projects and other short-term projects and can pull in expert staff for brief periods of time. These short-term personnel can be useful in raising the training levels of career staff and in introducing stimulating and alternative work methodologies.

Remember, the scale of the digital project will depend on the funding or staff allocated to it. It makes no sense to undertake a large scale project if the funding and staffing is limited by inflexibility in any area and is likely to remain so. Start small and the environment may be more flexible and responsive than you imagined.

## Training

It is very important to keep in mind that while your institution's digitization initiatives may begin as finite projects, ultimately digitization will be necessarily incorporated into the long term, ongoing operations of your organization. Plans to digitize must reflect the institution's ability and desire to hire and train individuals at the highest level of quality. Since the market for competent staff is highly competitive, it is often only the larger institutions that can afford the skilled and fully-trained workers for their digital imaging efforts. Other institutions should be willing to support both formal and informal on-the-job training. Their employees need to be able to do their routine jobs while learning to be proficient "digitizers."

Training within a digitization project is often not so dependent on the accumulation of knowledge that results in being "trained" as it is on the ability of the trainee to be in a constant "state of training" and to be able to work directly with others to reach common goals. The rapid change in technology and in practice within digitization projects requires a constant re-training and re-positioning of staff. In most cases, especially in smaller institutions, this will mean that project managers will need to spend a good bit of time keeping up-to-date on developments in the field, learning about emerging standards and best practices, and then take what's valuable, incorporate it in the project plan, and train other staff in its implementation. The flexible employee who has a fast learning curve will flourish in the type of environment required by digital undertakings where the less flexible, linear learner may have difficulty. Above all, training should accommodate the various learning styles of staff.

Changes in project staff can also present training issues. As staff move from one job to another, skilled workers can come and go. Therefore it is recommended that the project manager be trained in all aspects of the project so that staff changes do not necessarily mean a hiatus in work production and as new staff members begin on the project, an effective training system is in place.

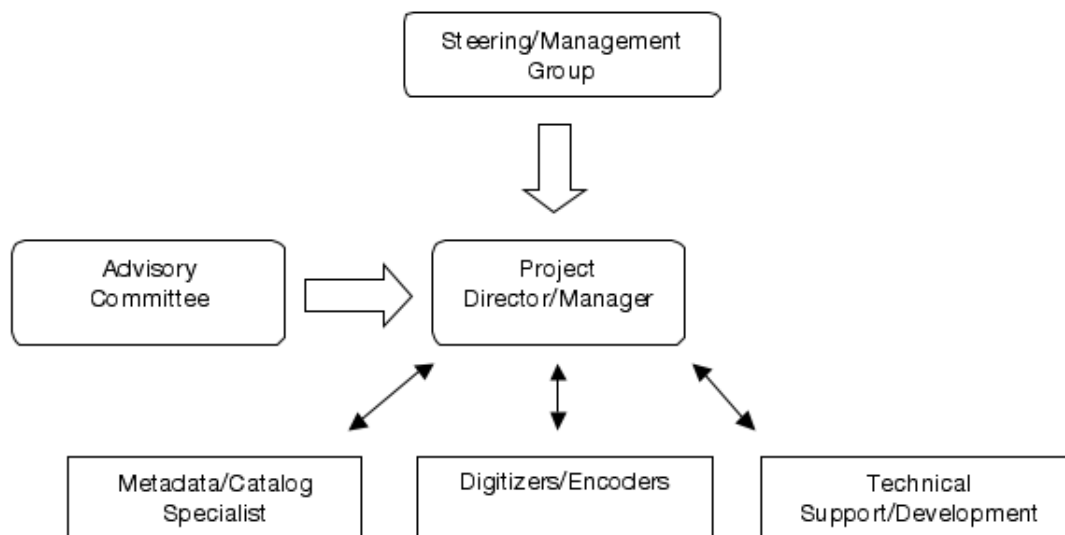
The creation of a training manual for each project may be useful. With background information on the project and step-by-step instructions for each task, it often saves time in the long run and ensures that everyone on the project gets the same information. For it to be successful, training should be firmly established in a good workflow design. Project managers will find that creating a training manual for digitization projects can lead to the institution's digitization program manual as an institution moves from tackling digitization case by case towards folding digitization into its ongoing operations.

## Workflow and Quality Management

Once your institution has established what work needs to be accomplished, what staffing is needed with what skills, and what training is needed, you will want to ensure that these variables are managed effectively and that the people hired or charged with working on the project are utilized wisely. Management's challenge is to determine the skills and attributes of employees and to determine how these employees can most efficiently contribute to the overall success of the project.

As stated above, in smaller institutions staff may carry out tasks in more than one area. Even in those cases, adopting a structured management scheme encourages efficiency. The following diagram and description, taken from Chapter II of *The NINCH Guide to Good Practice in the Digital Representation and Management of Cultural Heritage Materials*

(Version 1.1 of the First Edition, published February 2003, <http://www.nyu.edu/its/humanities/ninchguide/>), illustrates a simple management structure that can be used by digitization projects and programs of any size.



The steering group functions as an executive board and includes all constituents who are directly involved in the project, even if not employed by it, such as curators, archivists, subject specialists and education officers. In practice it is common for the steering group to be an existing committee within an institution. The advisory committee is a broader-based group, providing general advice on the project's focus and direction. Members can include the steering group with additional appointments from external organizations bringing particular areas of expertise, such as evaluation, to the initiative. There may be more than one advisory committee, or the advisory committee may be broken down into sub-committees each of which supplies more focused technical, academic or editorial decision-making support.

In a small project scenario, the steering committee may consist of only a few upper management people and the advisory board may be only these plus a couple members of a Friends organization. The project manager may also be the digitizer and encoder or also be the cataloger. In reality, there may be only two employees working on the project, but having a structure in place and known to all those working on a project creates an environment where everyone involved knows where the buck stops, who has authority over what tasks, and who is responsible for what tasks. A comfort zone in which people can relax and work is created.

It is essential to have a single project manager who is responsible for the project, overseeing its daily management. In most cases the project manager provides the necessary project management experience, supplemented by internal or external advice. An institution needs to assign both accountability and authority to the project manager position, to avoid the process being bogged down by myriad interactions with the advisory group or groups to deal with daily operations.

## Project Steps and Timelines

The steps in a digitization project generally follow the 8 common elements listed above, but there are several processes found within those elements. As the digitization project gets underway, the project manager should outline those processes to utilize staff time efficiently and to assure that no one process gets missed. The timeline for digitization of collections will naturally be determined by the institutional goals for their digital projects, by the staffing of the institution, and by the fiscal resources available. A general table of the steps in the digitization process based on the model established by the Library of Congress, National Digital Library Program, follows. It may need to be adjusted depending on the goals of the individual institution.

### The Digitization Process

Steps	% of Time (approximate)
<b>Collection Preparation</b>	20%
Establish Project Goals and Objectives Select items or collection(s) Research copyright, use restrictions, other - record information appropriately Plan the project - a small project or a small collection? - a selected project across collections? - the audience? - type of access? metadata? - see <b>Project Planning</b> and <b>Selection</b> chapters Develop the work-plan with staff and admin. Hire or re-assign staff Determine division of labor and roles of staff Train staff in proper handling, etc. Define work space	
<b>Organization</b>	20%
Determine the structure and/or arrangement of material Prepare the material - Organize: reformat material if necessary - Preserve: repair or adjust material - Describe: develop finding aid, catalog, or database Determine name and subject authorities - LC, AAT, ULAN, etc. Apply consistent digital naming conventions Establish processes for physical "handling" - fragile material - oversized material, etc. Establish access and use guidelines	

<b>Outsourcing (optional)</b>	15%*
<ul style="list-style-type: none"> <li>Determine the costs of contracted services</li> <li>Establish reputation of service</li> <li>Allocate portions to be outsourced</li> <li>Prepare RFPs, if necessary</li> <li>Draft work statement</li> <li>Draft timeline</li> <li>Evaluate proposals</li> <li>Workflow management to outsourcing vendor</li> </ul>	*Note that there is time involved in outsourcing.
<b>Digital Capture Process</b>	15%
<ul style="list-style-type: none"> <li>See Digital Production Chapter</li> <li>Scan</li> <li>Conduct post-processing <ul style="list-style-type: none"> <li>- create multiples (access, thumbnails, etc.)</li> <li>- name files</li> <li>- convert text, format, create headers, compress, set up for Web</li> </ul> </li> </ul>	
<b>Quality Review</b>	10%
<ul style="list-style-type: none"> <li>Inspect 10% of records for accuracy</li> <li>Inspect 10% of images for quality</li> <li>Check technical requirements and standards</li> <li>Give feedback to administration, contracted services</li> <li>Record assessment</li> <li>Make adjustments where necessary</li> </ul>	
<b>Archive/File Management</b>	10%
<ul style="list-style-type: none"> <li>Determine archival storage method</li> <li>Record all necessary information for migration purposes</li> </ul>	
<b>Prepare for Web Access</b>	20%
<ul style="list-style-type: none"> <li>Prepare HTML files</li> <li>Create indexes</li> <li>Assess quality of Web creation <ul style="list-style-type: none"> <li>- Web accessibility for disabled</li> <li>- Consistent with current standards</li> </ul> </li> <li>Test, re-design, if necessary</li> <li>Establish distribution network (internal and external)</li> <li>Prepare educational modules, if applicable</li> </ul>	
<b>Assessment</b>	5%
<ul style="list-style-type: none"> <li>Qualitative assessment</li> <li>Quantitative assessment</li> </ul>	

Your institution may find it helpful to use some sort of simple workflow chart. The following is adapted from a document designed by Jan Blodgett, College Archivist at Davidson College, Davidson, NC:

Digitization Project Workflow			
Task	Staff	Timeframe	Completed
Identify documents	Archivist	2 weeks	
Pull documents 1. Use document removed cards 2. Place in scan file cabinet	Project assistant	5 hours week  to be done semi-weekly	
Scan 1. Clean scanner 2. Calibrate 3. Scan 4. Save following file name procedures 5. Move folder to catalogers cabinet/flag for cataloging	Project assistant	3 hours /day	Use document workflow sheet for daily work
Cataloging/Metadata 1. Prepare Dublin Core records 2. Create text file for web pages and transfer to web staff	Archivist	2 hrs/day	Use document workflow sheet for daily work
Image Manipulation 1. Create jpg and thumbnail images 2. Store images in appropriate folders on server 3. Create backup cds for tiffs. 4. Update index for backup cds	Project Assistant	3 hrs/day	
Web site development 1. Using template, create pages for each image. 2 Include contextual information on page and Dublin Core in header.	Project Assistant	2 hrs/day	

A chart such as the above can be modified in any number of ways to reflect the activities, staffing, and time frames your digitization project requires. It will also be necessary for the project manager to recognize that any workflow chart or project planning table is not set in stone; it should allow for changes to be made due to unforeseen circumstances. Having a chart or table allows the project manager and project work team to map out work and see exactly what needs to be done when and by whom. By having all staff aware of each others' responsibilities and deadlines, the effects of any changes can be more easily understood by all involved.

It should be noted that just because a project has been completed and mounted on the Web, does not mean that staff may ignore the digital product. It is at this point that

concerns about site maintenance and data migration begin to pay off. Even if digital products were self-maintaining, they probably would continue to draw the attention of staff. Most digital collections made available online cause an increase in requests for the material and increase the reference duties of the host institution.

## **Outsourcing**

Outsourcing is an attractive option for some institutions because the expense of an in-house digitization project can be considerable if the required infrastructure is not present. It may be the only possibility for institutions wishing to digitize unusual or over-sized materials (large architectural drawings, maps, or poster collections). Whatever the size of the originals, outsourcing is a particularly appealing alternative if the digitization project is a one-time-only endeavor. If, however, an institution acknowledges that digitization will be an ongoing process, then outsourcing loses some of its luster. No one wants to become overly dependent upon another entity for a core activity. Because the decision to outsource is a difficult one, a consultant may be useful. Whether an institution works with a consultant or not, it certainly will want to consider doing a cost/benefit analysis of outsourcing versus in-house digitization.

Full outsourcing may involve sending materials off-site to a location where they are scanned and then returned to the collection. This will work if the items are sturdy and involve limited preservation concerns. (There are some special cases-- e.g., text encoding where photocopies of originals can be sent offsite.) All too often, however, the material to be digitized needs special handling, is rare or fragile, or simply cannot leave the physical premises of the institution – conditions inherent in most special collections. For this reason, full outsourcing is not an option for most institutions.

The key to a successful outsourcing project is the link of the metadata with the object. Managers will need to establish policies and procedures for tracking the material outsourced and matching it when it is returned. Some vendors will provide metadata at request.

Whether hybrid or full outsourcing, managers can contact a commercial digitization vendor who will estimate the cost of the venture and negotiate a timetable. But even when it is outsourced, a digitization project is never completely "delegated." Managers will still be managing, even if from a distance.

## **Disaster Preparedness**

It may not happen today, but something will go wrong sometime. Pipes can break, electrical shorts can become fires, and computers have been known to crash. Because of this, digitization projects and their products should be included in existing institution disaster plans, and project managers need to take special precautions to protect not only the originals but their digital surrogates. The best way to accomplish this is with backups. Automatic tape drive backups can help preserve Web productions, while master digital copies can be easily duplicated on CDs and stored off-site, such as with a partner institution. If it is important that a project site remains up and running during "difficulties," institutions may wish to explore mirror sites. Such sites duplicate information on several servers that are separated geographically. All of these servers are connected to the Internet and, if one goes down, the others are supposed to remain up and running. While few cultural institutions may wish to go this far in disaster preparedness, all will want to make some initial plans, create backups from the very first of every project, and explore off-site

storage of duplicate master images.

## Conclusion

Because of the high level of staff training required, the complex nature of the individual projects, and the almost constant change inherent in digitization, managing digital projects is a challenge. A well-trained, flexible staff, some sort of training manual, and a clear workflow plan with timelines and goals built-in are the best tools to help managers accomplish their tasks. These workflow plans also may demonstrate where it might be more economical to outsource portions of a project. Unless the entire project is outsourced, some space will need to be set aside for digitization activities and conventional preservation and safety concerns should drive this allocation of space. All project managers should factor disaster preparedness into their plans from the beginning of any project.

Project managers should also embrace the reality that their first or pilot digitization projects are most likely just the beginnings of digitization for their institutions. Developing long-term philosophies for how digitization is to be incorporated into the everyday workflow of your institution cannot start too soon and should be on a manager's mind from day one of the first digitization project attempted.

## Further reading

*Building an Emergency Plan : A Guide for Museums and Other Cultural Institutions.*  
Compiled by Valerie Dorge and Sharon L. Jones. Los Angeles : Getty Conservation Institute, c1999.

*Digital Projects Guidelines.* Arizona State Library, Archives and Public Records  
<http://www.lib.az.us/digital/>

*Handbook for Digital Projects: A Management Tool for Preservation and Access.* Northeast Document Conservation Center. First Edition. Maxine K. Sitts, editor. 2000  
<http://www.nedcc.org/oldnedccsite/digital/dman2.pdf>

*The NINCH Guide to Good Practice in the Digital Representation and Management of Cultural Heritage Materials* (Version 1.1 of the First Edition, published February 2003,  
<http://www.nyu.edu/its/humanities/ninchguide/>)

*RLG Tools for Digital Imaging* <http://www.rlg.org/preserv/RLGtools.html>

SOLINET. *Disaster Mitigation and Recovery Resources*  
[http://www.solinet.net/preservation/preservation\\_templ.cfm?doc\\_id=71](http://www.solinet.net/preservation/preservation_templ.cfm?doc_id=71)