

**Digital Preservation Cost Centers**  
**Digital Preservation Committee**  
**26 Oct 2006**

Digital preservation activities represent a new cost that is expected to be formidable. Substantial resource commitment has been and will be required to initiate as well as sustain a digital preservation program over time. Forecasting the precise magnitude of these costs, which will depend on factors such as system architecture, length of retention, scale, and preservation strategy is difficult because digital preservation is still very much in its infancy. Because so little is known about the actual cost of digital preservation, this document identifies cost centers, but does not attempt to calculate the related expenses.

**PLANNING:**

Creation, Acquisition, Evaluation and Selection Relating to Preservation:

Selection and evaluation costs are those associated with determining the desirability and feasibility of preserving the digital resource. Ideally, this process is first completed at the point of creation or acquisition and then again through time. Digital preservation planning and budgeting should be a forethought during the creation and acquisition process. Life cycle management is less expensive than data recovery. Good practice at the creation or acquisition stage will save resources at the preservation stage. The accepted figure is that it costs ten times as much to correct bad practice retrospectively than it would to adopt good practices at the creation or acquisition stage. (Hendley, 1998)<sup>1</sup> Furthermore, it is highly unlikely that repositories will be able to accept and care for everything that is offered to them. Accordingly, sound appraisal and selection processes must be established within organizations to determine exactly what they will and will not preserve.<sup>2</sup>

Negotiation:

Permission to preserve as well as permission to access digital resource may be required. These costs include the time required to negotiate the right to preserve resources as well as the rights management policies, i.e., who may access the resources, for how long and under what restrictions, if any. Negotiation may be required upon acquisition and later in the digital resources life cycle.

Determining and Implementing the Preservation Strategy

Determining the preservation strategy includes the time taken to ensure the digital object is adequately prepared for preservation and the resources for agreeing on a specific preservation strategy for continuing access (e.g. migration or emulation). Expenses may include the cost of software or hardware needed to prepare the digital resource for preservation and to make it available for access (e.g., the creation of emulation tools).

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<sup>1</sup> Hendley, Tony, Comparison of Methods & Costs of Digital Preservation, British Library Research and Innovation Report 106, British Library Research and Innovation Center, 1998. [http://www.ukoln.ac.uk/services/elib/papers/tavistock/hendley/hendley.html#\\_Toc422714321](http://www.ukoln.ac.uk/services/elib/papers/tavistock/hendley/hendley.html#_Toc422714321)

<sup>2</sup> Report of the DCC/DPC Workshop on Cost Models for Preserving Digital Assets, British Library Conference Centre on Tuesday 26th July 2005. Digital Preservation Coalition, <http://www.dpconline.org/graphics/events/050726workshop.html>

## **STORAGE**

### Data Storage:

These costs include expenses for the necessary technical infrastructure, i.e., hardware, operating systems, software, network, physical facility, etc. Data Storage costs include one-time costs for the purchase of these components, licensing fees, maintenance charges, and recurring facilities and supply expenses. Charges related to replicated and backup copies of the data are also included here.

## **ADMINISTRATION**

### Data Administration:

Staff costs (salaries, benefits, recruitment, training) for personnel specifically identified as administering the preservation technical environment and overall digital preservation program, as well as costs related to outreach (training and education) of University personnel using the preservation service. Expenses associated with following relevant developments and laws pertaining to digital preservation, conducting research and implementing development projects are also included here.

## **INGEST**

### Validation

Expenses associated with obtaining any necessary documentation and available metadata, the time spent checking the object received, machine validation and authentication of the digital resource.

### Data Preparation

The expenses related to implementing the digital preservation strategy.

## **DATA MANAGEMENT**

### Content Management

Costs, through time, associated with managing digital resources including activities such as format migration, digital resource deletion, re-validation and re-authentication.

Metadata is fundamental to preserving digital resources. Without quality metadata there is little or no value in preserving the resource. Preservation metadata includes a number of different types of metadata: *administrative* (used in managing information resources including rights and permissions), *technical* (describing hardware and software needed to maintain an information object) *structural* (identifying the relationships between objects such as *part of*, *dependent upon* that form intellectual entities), and *provenance* (metadata documenting the history of the object and any actions taken to maintain and provide access). The time and human level-of-effort involved in creating and maintaining preservation metadata is significant and carries a high cost. Overtime automated metadata creation and extraction methods may reduce this expense.

## ACCESS

### Resource Discovery and Retrieval

These are costs related to providing everything that is associated with reliably locating and accessing an acceptable presentation of the digital resource, e.g., the public interface, webserver, indexing, managing appropriate emulation tools, etc.

### Rights Management

Expenses related to retaining rights and permissions information, implementing and administering services that manage access and use according to these rights.

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## REFERENCES

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