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NINCH Guide to Good Practice:
MAKING THE GUIDE

DELOS Workshop on
Best Practices and
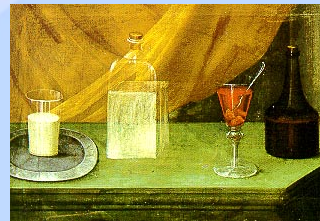Digitisation
24 August 20004

Dr Seamus Ross

Director, Humanities Advanced Technology and Information Institute—HATII

&

Professor of Humanities Informatics and Digital Curation

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Shape of Presentation

Iterative Process:
Feedback from the NINCH Workgroup
and from Interviewees.

- Who we are
- Who was in the Team
- Programme of Work
- How we conducted our work
- The Instrument
- The Building the Bibliography
- The Interview Reports
- The Guide to Good Practice
- Thoughts on the Presentation of the Guide and the Interviews

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Humanities Advanced Technology and Information Institute (HATII)

http://www.hatii.arts.gla.ac.uk/

- Undergraduate & Postgraduate Teaching
- Systems & Laboratory Development and Management
- Research (e.g. digital preservation studies, ICT in the heritage sector, evaluation studies)
- Consultancy
- Summer Schools, Conferences & Workshops
- Projects include
  - ERPANET
  - www.erpanet.org

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Cultural heritage Landscape

- Widely recognised that digital materials are intellectual Capital

  renewable resources

  education enabling resources

  a wealth Education Materials

  Support for Life-Long Learning

  Product of and Foundation for Creative Industries

  Improved Quality of Life

  Fostering Tourism

- Fragmentation of Effort & Practice
- Limited Technological Knowledge & Skiills
- Diversion of Policies and Strategic Activity

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is *e*Content?

- Products of digitisation of analogue materials
- Products of digital data creation—
  from scientific processes such as satellites, metrological monitoring, experiments etc.

  as a part of business processes conducted in digital form

  as a result of the use of digital technologies to create representations of the world (e.g. digital cameras)

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Who was in the Team

- HATII
  - Seamus Ross, Ian Anderson, Ann Gow, Peter McKinney, Celia Duffy (RSAMD), Maria Economou (Manchester), Rebecca Sharp
- NINCH Workgroup
  - David Green, Kathe Albrecht, LeeEllen Friedland (until April 2001), Peter Hirtle, Lorna Hughes, Katherine Jones, Mark Kornbluh, Joan Lippincott, Michael Neuman, Richard Rinehart, Thornton Staples, and Morgan Cundiff (from April 2001)
- The Community—Actors and Activities

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- NINCH Working Group Principles

  1. *Optimize interoperability of materials*

  2. *Enable broadest use*

  3. *Address the need for the preservation of original materials*

  4. *Indicate strategy for life-cycle management of digital resources*

  5. *Investigate and declare intellectual property rights and ownership*

  6. *Articulate intent and declare methodology*

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Programme of Work

- Start September 2000
- Digitization Data Collection Instrument September 2000
- First Interview Report November 2000
- Second Interview Report March 2001
- Bibliography March 2001
- Draft Guide July 2001

  Key development meeting 5   6July Glasgow

- Revised Guide 10 September 2001

  Revision Meeting 28 September WDC

- Final Report– Spring 2002

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- Literature Review

  Print

  Online

  Grey

- Site Selection

  Not Scientific Sample

  Diversity

  Themes

  Good Practice

- Good Practice not Best Practice

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- Research Instruments

  Web site surveys

  Site visits

  Telephone interviews

  Correspondence

- Site Visits

  Digitization Data Collection Instrument for Site Visit Interviews

  6 sections, 31 parts, 202 questions

  4 researchers, 20 sites, 36 projects, 68 interviewees

  90 minutes to 3 hours

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- The Sites
    1. The Bancroft Library
    2. Brown University, Women Writers Project
    3. The Online Archive of California
    4. The Art Institute of Chicago, Imaging Department
    5. University of Chicago, The Oriental Institute
    6. University of Chicago Library
    7. Colorado Digitization Project
    8. Library of Congress, Geography and Map Division
    9. Library of Congress, Preservation Reformatting Division
    10. Library of Congress, Prints and Photographs Division
    11. Library of Congress / National Digital Library Program (NDLP)
    12. Cornell University
    13. University of Illinois, Digital Imaging and Media Technology Initiative (DIMTI)

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14. Images of England project (National Monuments Record, English Heritage)
15. Göttingen State and University Library, Center for Retrospective Digitization
16. Harvard University, Visual Information Access (VIA)
17. Harvard University Fine Art Museums / Collection Management System
18. Harvard University Library / Library Digital Initiative Program (LDI)
19. Indiana University, Cook Music Library
20. The Church of Jesus Christ of Latter Day Saints, Genealogical Society of Utah (GSU)
21. University of Michigan
22. Museums and the Online Archive of California
23. New York Public Library (NYPL)
24. National Library of Norway

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25. Survivors of the SHOAH Visual History Foundation
26. Indiana University, Thesaurus Musicarum Latinarum (TML)
27. Tufts University (Perseus Project)
28. Library of Virginia (LVA)
29. University of Virginia, Center for Digital History (Alderman Memorial Library)
30. University of Virginia, Electronic Text Center
31. University of Virginia, Institute for Advanced Technology in the Humanities (IATH)
32. University of Virginia, Robertson Media Center (Clemons Library)
33. University of Virginia, Special Collections (Alderman Memorial Library)
34. University of Virginia, William Blake Archive
35. Walker Art Center (WAC) and Minneapolis Institute of Art (MIA)
36. WGBH Media Archives and Preservation Center & Digital Media Production

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- Thematic Research

  text encoding

  digital preservation

  asset management

  rights management

  quality assurance

- Metadata integrated into Guide

- Appendix B expands

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How we Conducted Our Work

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- Agreed suite of deliverables and programme of activity
- Agreed scope of deliverables and timetable
- Produced draft deliverables
- Review meetings with NINCH Working Group (November 2000, March 2001, May 2001, July 2001, & September 2001)
- Conference Calls with Working Group and members

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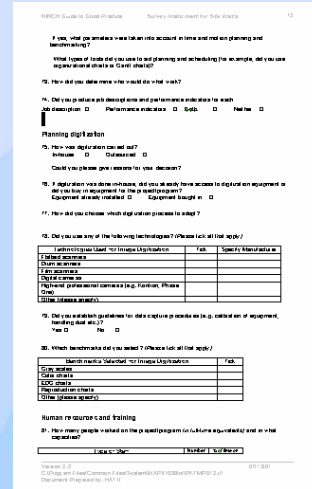

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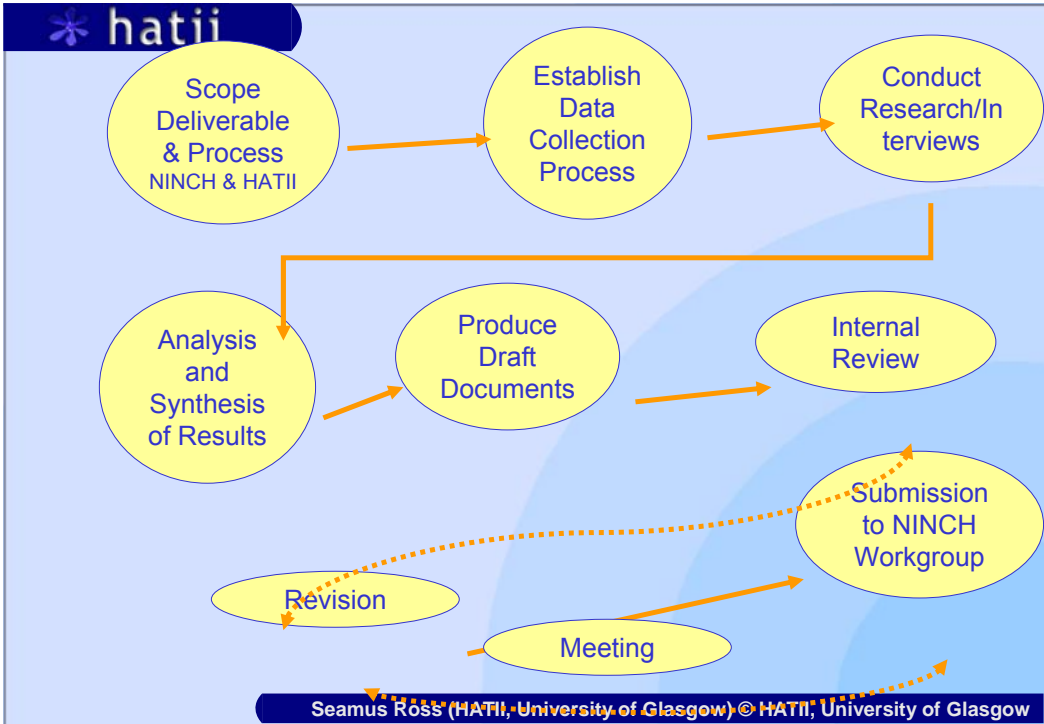
Deliverables (1): Instrument

- Tool to manage comprehensive and consistency of data collection about projects

- 220 core issues examined many of which resulted in the production

- Many of the questions were a surprise to the projects (e.g. workflow planning, user needs studies, evaluation and impact)

- The majority of interviewees reported that they learned much from the interview process

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Deliverables (2): Bibliography

- Objective: Develop a comprehensive bibliography for the topic from which a selected bibliography could be built

- Used existing publications, bibliographic resources (e.g. ISI databases, Zetoc, RLG), web, and recommendation of Workgroup, interviewees, etc.

- Produced draft—reviewed by workgroup

- Produced key publications list for inclusion in the Guide

- Bibliography needs constant review and renewal
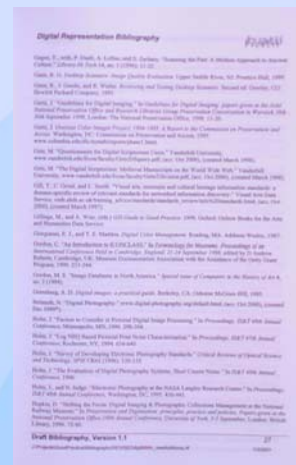
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Deliverables (3): Case Studies

- Interview sites agreed—built summary of over 600 projects – provided to Databases Initiative
- 20 Site Visits, investigated 36 Projects involving interviewing 68 individuals
- 36 reports some built on multiple interviews of different actors and activities

  e.g. Women Writers Project (Brown), Art Institute of Chicago, Online Archive of California, Colorado Digitization Project, Harvard University, Indiana University, NYPL, UVA, SHOAH

- Objective to investigate a cross section of projects and gain knowledge about best practices in the community

  Focused on 12 key themes: Project Management, Rights Management, Mark-up (text & Metadata), Images (Capture & Management), Audio (Capture & Management), Moving Images (Capture & Management), Preservation, Quality Assurance, asset management, collaboration, and standards.

- Did not find best practice, found best practices

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Deliverables (4b): The Guide

- Designed to meet needs of users from professionals to funders to academic researchers to teachers of technology, to vendors
- Looks at: (1)Who you are, (2)What do you want to do?, (3)Who is your audience, (4)Resources, (5)Selecting Materials, (6)Rights Management, (7)Digitization & Encoding of Text, (8)Still Images, (9)Audio & Video Capture and Management, (10)Quality Control & Assurance, (11)Collaboration, (12)Distribution, (13)Sustainability, (14)User Evaluation, (15)Digital Asset Management, (16)Preservation
- http://www.ninch.org/guide.pdf

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DELIVERABLES (4A): THE GUIDE

The Guide:

'provides content owners and decision makers with sufficient guidance to know whether or not they are getting best advice from their technical staff and whether their colleagues have put in place adequate strategies to guarantee the success of their digitization activities.'

(Ver 3.0, p.10)

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Lessons For Future Work

- Community willing to help, but wish to see immediate benefits—too little time
- Interviews, valuable but time-consuming, omit an interviewee report review process (March until August 2001)
- Gray Literature – a crucial source, but difficult to access
- Know your audience
- Every aspect of the project more complex and time consuming than originally thought
- Multi-actor, multi-site, and multi-deliverable projects difficult.

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✳ hatii — Did we find Good Practice?

- Tend to Discrete Projects rather than Coherent Programmes
- Tend to be institutional rather than regional or national
- Rarely collaborative beyond single institution
- Few use a strategic method for planning digitisation activities
- Most do consider rights issues (e.g. Copyright, IPR)**********
- Tremendous variation in approaches to standards & technology
- Not always clear projects considered the qualities of the source material(s) to be digitised
- Few appeared to have appreciated the complexity of the processes
- Understanding and Approaches to Metadata vary markedly
- Few used a formal mechanism to select items for digital imaging
- Only two had considered needs of users
- Nearly all access rather than preservation led
- Only two had addressed issues of sustainability (e.g. income generation, business models)

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A review of the work of the thirteen JIDI Projects produced thirty recommendations for future digital imaging projects, from these three stand out:

Monticello Mountaintop Layout

Description: Study of general layout of mountain
Date: 1768-1770
Medium: Ink
Support: Laid paper with watermarks (Paper A/3)
Dimensions: 22.8 cm x 36.9 cm (9" x 14-1/2")
Condition: Silk encapsulated, minor losses in lower right and upper middle areas, discoloration due to dirt around edges
Author: Jefferson
Owner: MHi
Classification: N-34, E-12
Publication History:

Author: Kimball
Title: Thomas Jefferson Architect
Date: 1916
Note:

- Digitisation programmes should be built on comprehensive retroconverted finding aids, if they are to provide maintainable, reusable, and incrementally developing resources.
- Quality assurance of the metadata is as important as quality assurance of the images themselves
- Involve the delivery service in the planning and design of the project from the outset.

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Rights Challenges

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- Collections are a capital asset -- yours or someone else's

- Intellectual Property Rights including copyright…..

  If the institution does not own the rights or have an easy way to secure a perpetual license to them then forget it….

  - Can the institution manage the licensing of institutional assets

Planning: Factors Evaluated

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1. Aims, Outcomes and Organisation
2. Project Planning and Management
3. Selection and Prioritisation
4. Quality Assurance
5. Archiving and Preservation
6. Sustainability

These are six key areas that need to be considered when planning, monitoring or evaluating a digitisation project.

✳ hatii — Aims, Outcomes and Organisation

Art Institute of Chicago	**Aims:** Serves strategic institutional requirements (education/publication) **Outcomes:** Total digital chain by summer 2001 – (from $6-8/one week to 25c/same day service for b/w image). Image material re-purposed for award winning multimedia applications **Organisation:** Imaging Department becoming a capture, quality control, storage and management facility not delivery. Horizontal co-operation developing
Thesaurus Musicarum Latinarum	**Aims:** Search and retrieve database of the entire corpus of Latin music theory **Outcomes:** 5,000,000 words in 741 separate texts accompanied by more than 4,000 graphics **Organisation:** Consortium of universities. Project Committee, Editorial Advisory Committee, Project Director
Colorado Digitisation Project	**Aims:** Digital image representation of Colorado's culture and heritage **Outcomes:** Open and distributed public access, efficient delivery, promote education, establish collaborative structure and selection criteria, 50,000 new digital images **Organisation:** 27 projects, 48 organisations, CDP the centre
DIMTI	**Aims:** 1. To utilize digital methods to preserve and to make accessible fragile and under-utilized visual resources. 2. To promote the use of digital media throughout the campus and scholarly community. 3. To conduct research that advances the creation and use of these resources. **Outcomes:** Over 40,000 multidisciplinary high quality images. **Organisation:** Project based collaboration with other university archives, libraries, museums, historical societies, academic faculty and users and corporations at the local, regional, national and international levels

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✳ hatii — Aims, Outcomes and Organisation

William Blake Archive	**Aims:** 1. Unite Blake's disparate, dispersed, and restricted visual and literary works. 2. Broaden access, enhance teaching and scholarly research. 3. Durable foundation for future scholarship and a legacy of adaptable tools **Outcomes:** Fully searchable and scalable electronic editions of 31 copies of 16 of Blake's 19 illuminated works, 1 copy of remaining 3, up-to-date bibliographic information, scrupulous "diplomatic" transcriptions, detailed descriptions of all images, and extensive bibliographies **Organisation:** "distance editing" collaboration model - 3 site editorial collaboration, IATH technical and management, 8 US and UK institutions contribute material
Virginia Text Center	**Aims:** 1. On-line archive of standards-based texts and images to serve multiple, nested audiences 2. to build and maintain user communities adept at the creation and use of these materials **Outcomes:** 51,000 SGML/XML texts (5,000 public access), 350,000 related images (164,000 public access) **Organisation:** Multi-sector and multi level co-operation

Despite/in spite of disparate aims and outcomes - collaborate, collaborate, collaborate. Plan for it & incorporate it but don't risk isolation from host institution.

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❋ hatii ❭ Planning of Projects

- What work needs to be done;

- Where does it need to be done;

- How it will be done (according to which standards, specifications, best practices);

- Who should do the work;

- How long the work will take;

- How much it will cost, both to "resource" the infrastructure and to do the content conversion;

- Where, after having answered all of these questions, one might obtain funding.

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❋ hatii ❭ Planning Projects

- The use of pilot projects and feasibility studies to shape the overall scheme of activity;

- Controlled and organized stages;

- The establishment of a project plan with milestones;

- Regular reviews of progress against plan and against objectives;

- Control of any deviations from the plan;

- The involvement of all constituents at the right time and place during the project;

- Good communication channels between all constituents in the project and the sponsoring institution/s; and

- Make colleagues (local and distributed) aware of what you want to do.

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Complexities of the Process

KEY Failure of projects: Lack of understanding of WORKFLOW & PROJECT MANAGEMENT

From: Seamus Ross. *JISC Evaluation: Image Digitisation Management Models.* October 2000

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Project Planning and Management

Art Institute of Chicago	Feasibility studies for technical feasibility, workflow analysis and technology forecasting.
Thesaurus Musicarum Latinarum	Regular planning sessions, external project committee and editorial advisory committee. No feasibility or pilot studies.
Colorado Digitisation Project	The four major institution types provide a variety of steering groups to decide on the guidelines for the participating projects. A primary board oversees the running of the CDP in general, while there are groups on collections, metadata, scan centers, website, heritage, audio standards and educational use.
DIMTI	Feasibility and pilot studies for scheduling, training needs, technical feasibility, user needs, workflow analysis, workflow piloting and technology forecasting. Rolling goals revised yearly. Flat library admin structure facilitates consensus building and goal of integrating digitisation operations into mainstream activities.
William Blake Archive	Pilot studies for training needs, technical feasibility, user needs, workflow analysis and technology forecasting. 13 person advisory board, annual meeting to set agenda. Permissions biggest obstacle.
Virginia Text Center	Early involvement of consultants, management part of UVA library but no formal structure

Feasibility/pilot studies vital for planning workflow. Establish Advisory and/or Steering groups. Absence of formal project management models.

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hatii Develop Procedures

- Define project management processes
  - Task definition
  - Performance monitoring
  - Communication
  - ....
- Establish mechanisms to monitor how these processes are working
- Identify goals and define time scales
- Create risk analysis procedures
- Establish an independent advisory or steering committee

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hatii Review Existing Resources

- Is there an institutional digitization policy to adhere to?
- Who else in the institution has digitization projects underway?
- What experience can you use (e.g., photographic, equipment analysis, etc.)?
- What have you, your colleagues, or your organisation learned from other projects?
- What does the literature say (e.g. *NINCH Guide to Good Practice*, Minerva Guidelines,etc)

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✳ hatii ❭ People

- Human resources key—
  - outsourcing,
  - management,
  - grant getting,
  - expertise in digitization,
  - text encoding,
  - networks or web delivery can often be found in house
- Examples of transferable skills, techniques and processes
  - digital photography nearly identical in many areas to analog photography
  - standards and methods for creating metadata have their roots in the creation of bibliographic records, library catalogs or finding aids and museum collection management systems.

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✳ hatii ❭ Key Skills Required

- Conservation: assess analog materials (e.g. is conservation intervention needed).
- Digitization/Encoding: This can involve digital imaging, keyboarding, OCR, character or full-text encoding, or a combination of these.
- Metadata/Cataloging.
- Technical Development/Support:
  - IT solutions for creating, managing or delivering the digital material
  - provision of IT support for project hardware and software.
- User needs/evaluation specialist

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What do you have?

* equipment and software are of a sufficient specification to meet your requirements;
* workers who can operate the equipment are available and appropriately trained;
* technical support and maintenance are in place;
* capture devices are (or can be) directly connected to your storage area; and,
* access to equipment and staff suits your workflow requirements.
* Consider hidden benefits
  - Local area networks, high bandwidth Internet connections, large capacity network   based
  - storage devices, web servers, and technical expertise associated with maintaining and developing these facilities

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Selection and Prioritisation

Art Institute of Chicago	1. Educational value, in particular K-12, then scholarly value. 2. Good cataloguing data available (for example recently researched or published)
Thesaurus Musicarum Latinarum	Provided intellectual property rights were secured, material that had the highest research significance had the highest priority. Every edition of a text included. A second selection criterion has been to digitize related manuscript sources to facilitate the production of new editions
Colorado Digitisation Project	Priorities set through 300 project collection content surveys. Established 4 areas - Alpine Life; Water Resources; Colorado History; and Immigration/Migration. Main criteria cultural and historical value and primarily Colorado based in content.
DIMTI	Primary criteria are material's teaching and learning potential and unique cultural and historical significance. Secondary criteria are enhanced access and preservation (against content loss)
William Blake Archive	1st phase prioritized a group of Blake's illuminated books based on historical principles derived from recent revisionist scholarship. 2nd phase priority moved to additional illuminated books and non-illuminated material, such as paintings, drawings, original and reproductive prints, manuscripts, and rare or unique typographical works
Virginia Text Center	Early priority on high-use (e.g. Mark Twain) and inaccessible material (special collections). Selection and prioritisation of materials to digitise is driven by research, pedagogy and access. Increasing movement towards digitising material for preservation

Match criteria to project aims. General absence of institutional digitisation plans, but these being developed.

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hatii Planning the Digitisation

- Assess the way it conveys information (how important is color, line, detail, text?) and the kinds of metadata that can or must accompany it.
- Decide whether you will digitize in black and white or color (a variety of bitdepth decisions need to be made).
- Decide on whether you have the expertise needed in house, whether you need some training or whether you will outsource the job.
- Decide on file format, size, storage and management.
- Define benchmarks to ensure image capture consistency across the collection.
- Test a sample of images for capture, display, and print output.
- Decide on standards for documentation (metadata) of the digital files.
- Clarify decisions about sustainability of the project and preservation of the digital files.

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Technology Match

- digital imaging
- storage
- manipulation
- access
- delivery
- use
- standards
  robust and applicable
- security
- charging

The sources will be diverse, and include: Architectural blueprints, photographs, negatives, engravings and etchings, newspapers, monographs

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Conservation

- Pre-project conservation evaluation
- Plan conservation
- Ensure adequate staffing levels
- Review processes regularly
- Post-digitisation conservation evaluation

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Authenticity

- That digital objects are what they purport or claim to be
- that we know about the history of digital objects
- that we can verify that they have not changed or been modified

Few Digitisation projects could demonstrate that they produced authentic digital representations of the analogue source

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✳ hatii Outsourced

- Can reduce digitisation costs, but pushes up other costs (e.g. transport, packaging, QA)
- Changes class of staff skills
- Avoids technology investment, but creates dependence on existing technologies
- Enables response to different technology requirements

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Quality Assurance

Art Institute of Chicago	Carefully calibrated input devices and colour evaluation post capture by senior Imaging staff. Field and name controls and some automatic checks for Metadata.
Thesaurus Musicarum Latinarum	At least three sets of total checks on each text. Documented capture settings.
Colorado Digitisation Project	Workshops to explain how to calibrate and use benchmarks in the scanning process.
DIMTI	Gray scales, color charts and reproduction charts used for benchmarking. Random checks on materials, Q&A check on metadata field by field.
William Blake Archive	Each transparency first color corrected to the original before the digital image is color corrected to the transparency. 1005 checks on images and metadata.
Virginia Text Center	Documented capture procedures for all equipment and stages. Kodak colour stri0p used as benchmark for all images

*QA procedures for digital images well established, but less so for metadata and interfaces, and almost entirely absent for project management. **Develop QA for all aspects of a project.***

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✳ hatii Quality Control and Assurance

- Ensure the work area is free from strong colors and reflections (e.g. a room painted gray without direct sunlight)
- Always calibrate the monitor regularly (see Section VI on Images)
- Use appropriate software for your image or text format
- View originals and print output in bright, preferably natural, light
- View display output in low, but not dark, light
- Minimize the number of different people who perform QC&A measures, to reduce variability
- Ensure that all QC&A staff use identical equipment and configure it the same way
- Consider using color management software to ensure consistency throughout the digitization chain
- Document the QC&A procedure either through having online checklists or through paper–based forms that staff complete for each object
- Establish a QC&A

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Archiving and Preservation

Art Institute of Chicago	Rotation of off-site location, redundant media and optical media (proposed DVD-R when ROI is realized)
Thesaurus Musicarum Latinarum	Tape back-up, on and off-site CD storage in controlled conditions. All paper documentation is kept, including copies of the original sources. A longer-term preservation strategy is likely to rely on the (forced) migration of data
Colorado Digitisation Project	Archiving: CD backup and projects FTP files to CDP for server storage. Preservation: A panel of experts (one of the committees) to look at existing resources and how each project preserves digital material. Developing an OS migration plan.
DIMTI	Data integrity checked annually, tape back-up and three sets of CDs stored in climate and light controlled conditions. This is an informal stopgap strategy based on original hardware and application software retention and migration of data
William Blake Archive	Archiving. Retention of hard copies of all Image Production Records, ledgers tracking electronic file transfers, consignment of TIFF images to tape and CD-ROM, shipping of transparencies and slides, copies of the DTD and the Archive's SGML. On-site and off-site tape backups
Virginia Text Center	Currently off-line CD-W, previously tape system. Short TEI header for each image and into each image

*Archiving procedures well established but no project successfully addressed preservation issues. All sectors grappling with this issue but plan for hardware/ OS/application/data migration – **standards the key.***

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Access vs Preservation

- Access primary justification for Digitisation

  not preservation, keep the original

- Preservation

  protection against loss

  improved usability

  extend usefulness of content

- Authenticity = identity + integrity

Digitisation transforms material and creates assets. It must be possible to authenticate and preserve these.as their creation consumed scarce resources and formed the foundation for scholarship.

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Sustainability

Art Institute of Chicago	Dependent on self-generating funds and the creative efficiencies provided by the technology
Thesaurus Musicarum Latinarum	Dependent on self-generating/grant funding. Projects need to recognize that even institutional support is tenuous, that digital data is easily destroyed, and that some projects will not survive
Colorado Digitisation Project	Considering a membership based organization to generate revenue. Developing an exit strategy
DIMTI	Sustainability is a major problem that staff are working on; a revenue stream needs to be identified from a combination of internal re-allocation, new money and external support. Beginning small experimental project to publish some selected parts of collections with the aim of cost recovery
William Blake Archive	Based on continued grant funding
Virginia Text Center	University and grant money still important, but increased use of non-invasive charging e.g. Print-on-demand & Ebooks for Microsoft Reader

Public money may not sustain a project – need to explore and plan for alternative revenue streams and develop an exit strategy to maintain access to resources as a minimum.

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✳ hatii Sustainability

- Starts at project design
- Will depend upon a critical mass of resource
- Requires a focused market sector
- Depends upon reusability and models
- Requires collaboration
- Trusted repositories

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Next Steps

- improve and reinforce the co-ordination of digitisation activities;
- enable the efficient and effective use of digitisation to open up our unique and significant wealth in its cultural and scientific heritage;
- reduce, if not eliminate, redundancy and fragmentation of effort, divergence of technical approaches, and waste of financial resources;
- facilitate the creation of *e*Content industries;
- capitalize on the investment made digital resources creation;
- ensure visibility and interoperability of the resources;
- deliver digital assets that promote and reflect cultural diversity; and,
- bring cohesiveness and shared vision to what is currently a fragmented area of activity.

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Core Principles

- Avoid duplicate initiatives – co-ordinate activity
- Digitisation is a chain of activities of which selection is one small part - but it is an essential part
- Digitisation creates new assets, but it consumes scarce resources. A balance must be struck.
- Don't be a lemming - the rush to digitise makes us followers not leaders
- Focus on high quality resources (QA & evaluation)
    Accurate, authentic, reliable, and complete
- Planning (e.g. Workflow) and Project management key steps
- Focus on economic sustainability of resources
- Skills base- - invest first
    See for example: (http://www.cordis.lu/ist/ka3/digicult/en/newsletter.html).

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✳ hatii Local Initiatives (1)

- Develop selection criteria, and consistent and widely used metrics for documenting how material is selected;
- coherent long term digitisation planning to reduce costs and eliminate the practice of digitising the best treasures of the collection or 'end of year' digitisation to make effective use of unanticipated revenue savings; and,
- the definition of workflow, standards, and infrastructure developments and implementations that can be consistently adopted across the organisation.

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✳ hatii) Local Initiatives (1)

- establish of digital representation certification processes (e.g., mechanisms for demonstrating that the digital representation is a faithful copy of the analogue original) to provide a way to demonstration the authenticity of the digital copy;
- limit reduction of the number of units within an organisation engaged managing the in digitisation of holdings;
- establishing and adopting standards for the creation and representation of content across the organisation;
- outsourcing of digitisation activities to achieve the economies of scale where an in-house service can not deliver these;
- development of metrics to measure use and impact of the products of digitisation;

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