Workflow Exercise Slides

BitCuratorEdu

Last Updated: August 9, 2020

Work Flow – The Thing to be Represented

"the sequence of processes through which a piece of work passes from initiation to completion"
(Oxford English Dictionary, Second Edition, 1989)

Workflows vs. Functions

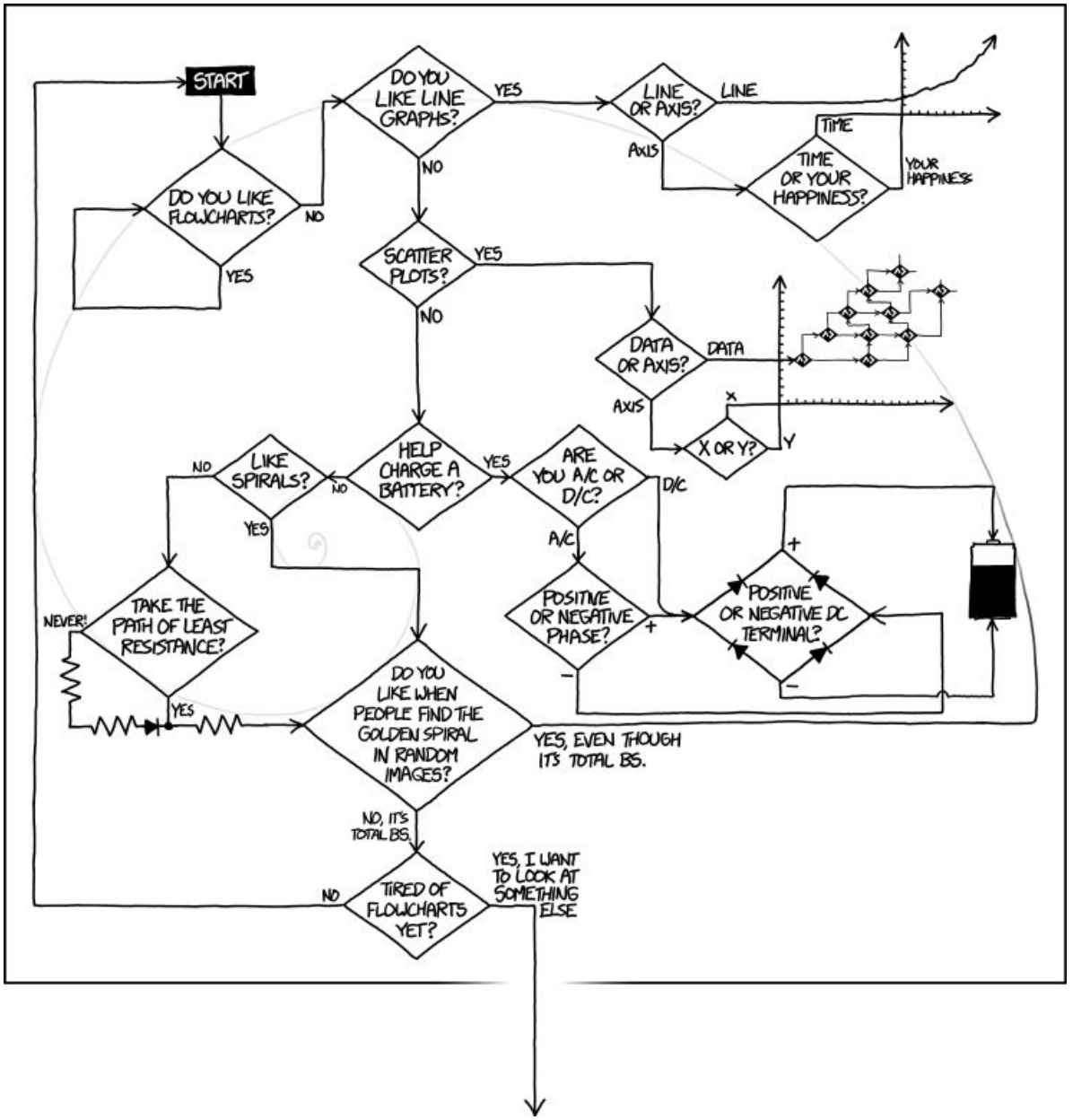
- Functions are often purposely “workflow agnostic”
- In practice, the functions have to be pieced together in specific ways that are appropriate to the particular context
- If the functions are the verbs, then the workflows are the sentences (or paragraphs...)

Work Flows as Models – Representations of the Thing

- Explicit, symbolic representation of the workflow
- Usually inspired by new system design or attempts to reengineer a process
- There are many different ways to model a workflow
- But the basic components tend to be similar

Parts of a Workflow

- Entities/Stages – where something happens (e.g. data are transformed, someone makes a decision, data are captured)
- Input(s) – control and/or information that flows into an entity/stage
- Output(s) – control and/or information that flow out of an entity/stage



http://xkcd.com/1488/

Vital Factor that Sets Workflows and Systems Apart from Individual Tasks: Interoperability

Two Different Representation Goals

- Describe what is **being done** now
  - To understand, analyze, audit current state of things
  - Should be explicitly tied to **how** things are currently done and **who** currently does them
- Describe what you want to **get done**
  - To design new systems, reengineer processes
  - Should focus on the purposes and objectives of a process, rather than fixating on how things are currently done and who currently does them

Describing what you want to get done (process modeling)

Identifying a Process*

- Name it
  - *Verb-noun* – e.g. generate AIP, harvest web site
  - *Verb-qualifier-noun* – e.g. generate descriptive information, develop preservation strategy
  - *Verb-noun-noun* – e.g. assign file permissions, verify object integrity
- Ensure there is a clearly intended result
  - Test: *noun-is-verbed* form (e.g. AIP is generated, web site is harvested, object integrity is verified

*Sharp, Alec, and Patrick McDermott. *Wokflow Modeling: Tools for Process Improvement and Applications Development*. 2nd ed. Boston, MA: Artech House, 2009. p.40

Criteria for Identified Result*

1. *Discrete and identifiable* – “you can differentiate individual instances of the result, and it makes sense to talk about 'one of them‘”
2. *Countable* – “you can count how many of that result you've produced in an hour, a day, or a week”
3. *Essential* – “fundamentally necessary to the operation of the enterprise, not just a consequence of the current implementation,” i.e. “must focus on 'what, not who or how‘”

*Sharp, Alec, and Patrick McDermott. *Wokflow Modeling: Tools for Process Improvement and Applications Development*. 2nd ed. Boston, MA: Artech House, 2009. p.40-41

Exercise - Modeling a Workflow

Your institution is ready to begin modeling workflows for some of the activities that will be encountered frequently at its repository. The leadership has generated a list of five processes to be represented in workflow models. These workflow processes are discrete, identifiable, countable, and essential to your mission. You have been tasked with bringing drafts of each workflow to the next meeting of the repository Steering Committee.

Sharp, Alec, and Patrick McDermott. Workflow Modeling: Tools for Process Improvement and Applications Development. 2nd ed. Boston, MA: Artech House, 2009. p.40-41.

Instructor Note: This exercise can be implemented in a face-to-face setting with sticky notes, but you can also implement it in a remote setting using breakout rooms and shared whiteboard spaces such as Jamboard, Miro, Sketchboard or MURAL.

Processes to Represent in your Workflow Models

Generate Archival Information Package (AIP) – "transforms one or more SIPs into one or more AIPs that conform to the archive's data formatting and documentation standards" (OAIS)
Negotiate Submission Agreement – "solicits desirable archival information" for the archive, "negotiates Submission Agreements with Producers" and "negotiates a data submission schedule with the Producer" (OAIS)
Develop Preservation Strategies and Standards – "developing and recommending strategies and standards to enable the archive to better anticipate future changes in the Designated Community service requirements or technology trends that would require migration of some current archive holdings or new submissions" (OAIS)
Monitor Designated Community – "interacts with archive Consumers and Producers to track changes in their service requirements and available product technologies" (OAIS)
Detach Digital Objects - separating data and metadata from physical medium without violating their integrity in the process

- Identify 5 to 10 sub-processes that are directly related to your process.
- Write each sub-process on a sticky note
- Arrange the sticky notes into a workflow, using arrows to connect them
- When possible, label the arrows to clarify how the sub-processes are linked

Post-Mortem Discussion

Characterizing Your Workflow

- How did you decide what to label your sticky notes?
- How did you decide how they should be arranged?
- What was the hardest part of the process?
- How did group products differ? Why?

Five Sources of Workflow Examples

Martin J. Gengenbach, "'The Way We Do it Here': Mapping Digital Forensics Workflows in Collecting Institutions," A Master's Paper for the M.S. in L.S degree. August 2012. http://digitalcurationexchange.org/system/files/gengenbach-forensic-workflows-2012.pdf

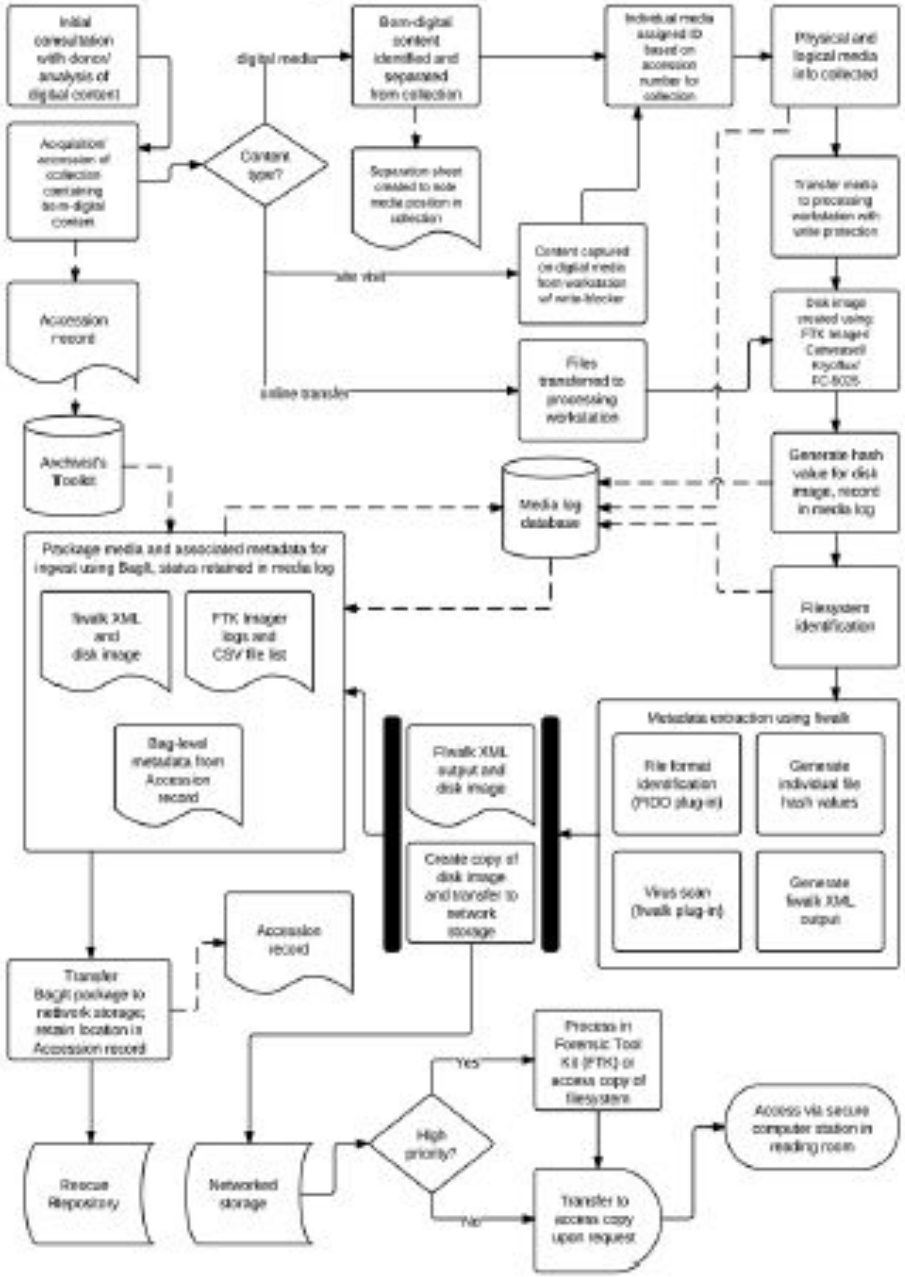
AIMS Work Group, "AIMS Born-Digital Collections: An Inter-Institutional Model for Stewardship," January 2012. http://www2.lib.virginia.edu/aims/whitepaper/AIMS_final.pdf

Digital Sustainability Lab – Massachusetts Institute of Technology http://www.dpworkshop.org/sites/default/files/DCM-Pipeline_28Apr2015.pdf

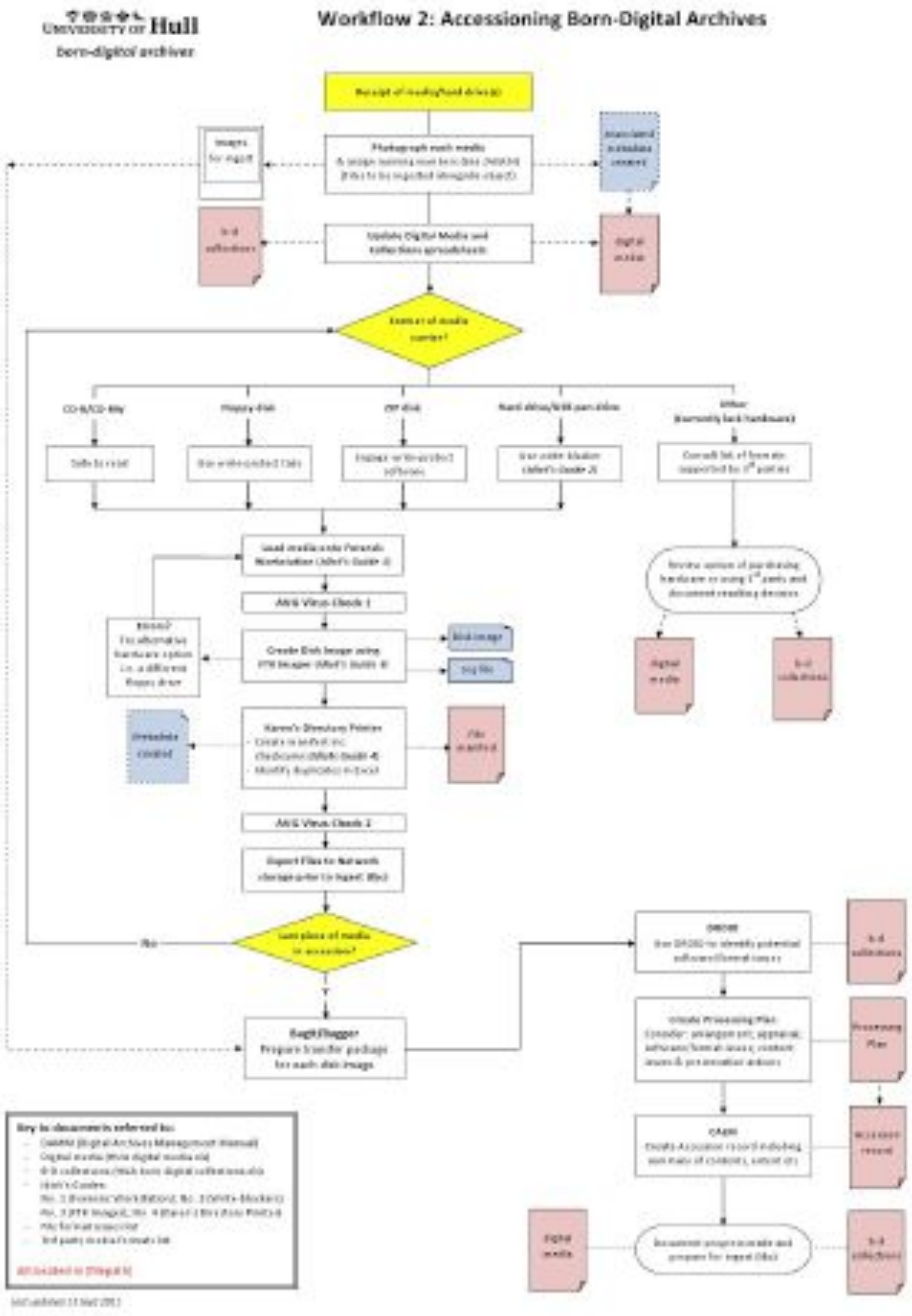
Workflows, BitCurator Consortium. https://bitcuratorconsortium.org/workflows

Library Workflow Exchange http://www.libraryworkflowexchange.org/

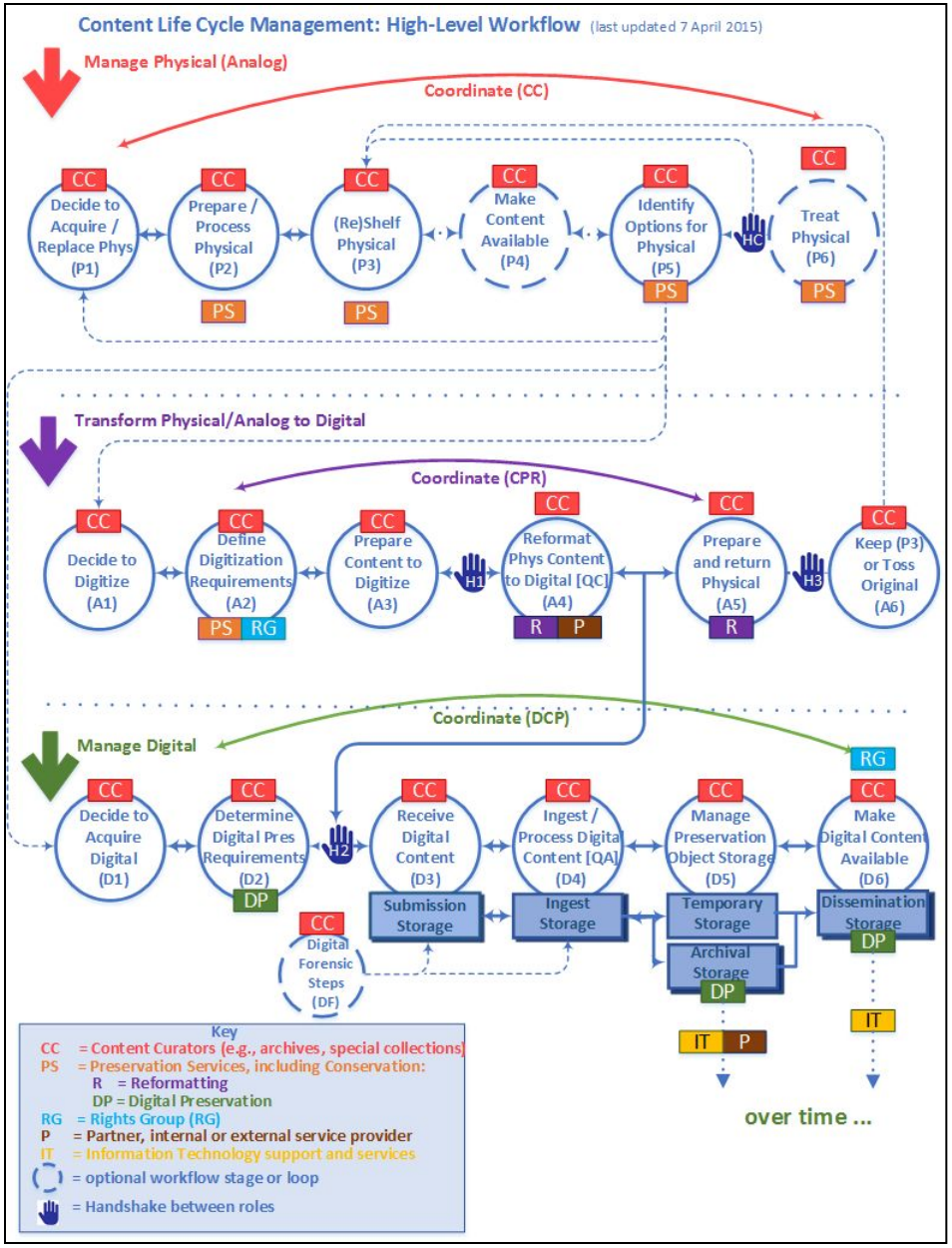
Figure 1. Beinecke Rare Book and Manuscript Library, Yale University



Martin J. Gengenbach, "'The Way We Do it Here': Mapping Digital Forensics Workflows in Collecting Institutions," A Master's Paper for the M.S. in L.S degree. August, 2012.



AIMS Work Group, “AIMS Born-Digital Collections: An Inter-Institutional Model for Stewardship,” January 2012.



Kari Smith, Massachusetts Institute of Technology.
http://www.dpworkshop.org/sites/default/files/DCM-Pipeline_28Apr2015.pdf

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Not a member?

Much of the content on BitCuratorConsortium.org is accessible to members only. Learn more about the benefits of joining the BCC.

Workflow

The following workflows depict the step-by-step processes BitCurator Consortium members follow to acquire, process, describe, and store the born-digital materials in their collections. Most of these resources are only accessible to members. Learn more about the benefits of membership.

If you are interested in adding a workflow to our listing, please contact us.

Title	Contributor	Release Date
Processing Workflow	The University of Maryland, Libraries	2016 March 22
Princeton University Archives (Members Only)	Princeton University	2015 June 30
Penn State Born Digital (Members Only)	Penn State University	2014 July 29
Duke University Archives	Duke University	2012 August 12
Beineke Rare Books and Manuscripts Library	Yale University	2012 August 12
Maryland Institute for Technology in the Humanities	The University of Maryland, MITH	2012 August 12
University of North Carolina, Chapel Hill, Archives	University of North Carolina Chapel Hill, SILS	2012 August 12
University of Virginia Libraries	University of Virginia	2012 August 12
Yale University, Manuscripts and Archives	Yale University	2012 August 12

https://bitcuratorconsortium.org/workflows

Other Workflow Examples

- Elford, Douglas, Nicholas Del Pozo, Snezana Mihajlovic, David Pearson, Gerard Clifton, and Colin Webb. "Media Matters: Developing Processes for Preserving Digital Objects on Physical Carriers at the National Library of Australia." Paper presented at the 74th IFLA General Conference and Council, Québec, Canada, August 10-14, 2008. http://archive.ifla.org/IV/ifla74/papers/084-Webb-en.pdf
- Glick, Kevin, and Eliot Wilczek. "Ingest Guide." Tufts University and Yale University, 2006. http://dca.lib.tufts.edu/features/nhprc/reports/ingest/index.html
- Klett, Fanny, Ann Hägerfors, and Kuldar Aas. "State-of-the-Art, Stakeholder Needs, Application Scenarios." PROTAGE Consortium, 2008. http://www.protage.eu/files/D1%201-State-of-the-art-Needs-Scenarios%20ver%201%200.pdf [For presentation of workflow, see especially p.49-71, 80-87]
- Mitchell, Marilyn, ed. *Library Workflow Redesign: Six Case Studies*. Washington, DC: Council on Library and Information Resources, 2007. http://www.clir.org/pubs/reports/pub139/pub139.pdf
- Morris, Steven P. and James Tuttle. “Curation and Preservation of Complex Data: The North Carolina Geospatial Data Archiving Project” Paper presented at DigCCurr2007: An International Symposium on Digital Curation, Chapel Hill, NC, April 18-20, 2007. http://ils.unc.edu/digccurr2007/papers/tuttle_paper_4-3.pdfMorris, Steven P. and James Tuttle. “Curation and Preservation of Complex Data: The North Carolina Geospatial Data Archiving Project” Paper presented at DigCCurr2007: An International Symposium on Digital Curation, Chapel Hill, NC, April 18-20, 2007. http://ils.unc.edu/digccurr2007/papers/tuttle_paper_4-3.pdf [See also conference presentation: http://ils.unc.edu/digccurr2007/slides/tuttle_slides_4-3.pdf]
- Müller, Eva, Uwe Klosa, Peter Hansson, and Stefan Andersson. "Archiving Workflow between a Local Repository and the National Archive Experiences from the DiVA Project." Paper presented at the Third ECDL Workshop on Web Archives, Trondheim, Norway, August 21, 2003. http://bibnum.bnf.fr/ecdl/2003/proceedings.php?f=muller

Workflow Examples Continued

- Owens, Evan. "Automated Workflow for the Ingest and Preservation of Electronic Journals." In *Archiving 2006: Final Program and Proceedings, May 23-26, 2006, Ottawa, Canada*, edited by Stephen Chapman and Scott A. Stovall, 109-12. Springfield, VA: Society for Imaging Science and Technology, 2006. http://www.portico.org/news/Archiving2006-Owens.pdf
- Pledge, Jonathan, and Eleanor Dickens. "Process and Progress: Working with Born-Digital Material in the Wendy Cope Archive at the British Library." *Archives and Manuscripts* 46, no. 1 (2018): 59-69.
- Underwood, W.E. and S.L. Laib. “PERPOS: An Electronic Records Repository and Archival Processing System.” Paper presented at DigCCurr2007: An International Symposium on Digital Curation, Chapel Hill, NC, April 18-20, 2007. http://ils.unc.edu/digccurr2007/papers/underwood_paper_6-3.pdfUnderwood, W.E. and S.L. Laib. “PERPOS: An Electronic Records Repository and Archival Processing System.” Paper presented at DigCCurr2007: An International Symposium on Digital Curation, Chapel Hill, NC, April 18-20, 2007. http://ils.unc.edu/digccurr2007/papers/underwood_paper_6-3.pdf [See also conference presentation: http://ils.unc.edu/digccurr2007/slides/underwood_slides_6-3.pdf]
- Vardigan, Mary, and Cole Whiteman. "OAIS Meets ICPSR: Applying the OAIS Reference Model to the Social Science Archive Context." *Archival Science* 7. No. 1 (2007): 73–87. http://www.springerlink.com.libproxy.lib.unc.edu/content/50746212r6g21326/fulltext.pdf

Most resources from the BitCuratorEdu project are intentionally left with basic formatting and without project branding. We encourage educators, practitioners, and students to adapt these materials as much as needed and share them widely.

The BitCuratorEdu project is a three-year effort funded by the Institute of Museum and Library Services (IMLS) to study and advance the adoption of digital forensics tools and methods in libraries and archives through professional education efforts. This project is a partnership between Educopia Institute and the School of Information and Library Science at the University of North Carolina at Chapel Hill, along with the Council of State Archivists (CoSA) and several Masters-level programs in library and information science.