

Digitization, Data Curation, and Human Rights Documents:

Case Study of a Library-Researcher-Practitioner Collaboration

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Abstract

At Purdue University Libraries, a project involving the digitization of Amnesty International Urgent Action Bulletins from 1974-2007 combined the strengths of political science and library science researchers. The political science research was centered on transnational human rights advocacy and legal instrumentation changes over time, while the Libraries' research related to data management, data lifecycle and curation, metadata, and collaborative research modeling. The conceptual framework of this case study is rooted in the literature on embedded librarianship and lifecycle models of data curation. We investigate the intersections and alignments between scholarly workflow and curatorial workflow, and the implications of these intersections and alignments in collaborative research and curatorial lifecycles. The case study also examines how library resources supported research, and how library science and political science experts collaborated in research through the development of a conceptual model. A research collaboration model was developed specifically for the human rights texts project, but was then generalized to be applicable for a variety of practitioner-librarian collaboration projects. The research resulted in data production, data curation, data management, data publication, and scholarly communication and dissemination.

Keywords: data curation lifecycle, metadata, human rights, Amnesty International, research collaboration, digitization, archives

Introduction

Partnerships among librarians and faculty members that develop ways to preserve and create digital access to research information have the potential to open up new avenues of teaching and inquiry for both faculty and librarians. A project at Purdue University to create a digital research collection of human rights

documents has piloted this sort of innovation and collaboration. By its nature, the project required close communication at key points to make the most of faculty and library expertise. This paper explores the process of creating a digital collection of international human rights documents in a way that is integrated into the research workflows of faculty.

Academic Libraries have been exploring new roles in recent years that improve engagement and more tightly couple the activities of the Libraries with the activities of their users and institutions. This has been manifest in several ways. Significant attention has been paid to better integrating digital collections with discovery and linking technologies, and 'getting into the flow' of faculty and students (Dempsey 2012). There has also been considerable focus on revitalizing liaison librarian roles as a way of developing stronger relationships and partnerships with faculty, particularly in support of information literacy, scholarly communication, and support for digital scholarship (Auckland 2012; Jaguszewski & Williams 2013; Kenney 2014). Information literacy and informed learning, for example, imply a deeper level of integration into the curriculum than bibliographic instruction efforts of the past (Jaguszewski & Williams 2013).

Libraries have also been active in recent years in exploring opportunities for supporting scholars in their research processes. There has been considerable interest among research libraries, for example, in supporting digital humanities and e-science services. These often involve partnerships between libraries and researchers to find ways to better integrate library collections, library science expertise, and library services into research processes, and to better integrate primary research outputs, such as datasets, into curatorial processes (Brandt 2007). The digitization project for the Amnesty International Urgent Action

Bulletins collection at Purdue University Libraries, referred to below as the Human Rights Texts project, developed out of such a partnership between faculty and the library. The goal was not merely to develop information products that are of general use to scholars, but also to align the development process with lifecycle models of data use and scholarship support.

Conceptual Framework and Research Questions

The conceptual framework of this case study is rooted in the literature on embedded librarianship and lifecycle models of data curation. Embedded librarianship is an emerging model of librarianship in which librarians apply expertise in information organization, management, and use in the context of library users – embedded within teaching, research, or clinical environments (Schumaker & Talley 2009, p. 8). Rather than a passive model in which librarians react to the needs of their constituents, embedded librarianship presents an active model in which librarians are partners in addressing instructional or research needs (Kesselman & Watstein 2009; Rankin et al. 2008; Carlson & Kneale 2011; Clyde & Lee 2011; Rudasill 2010). While many librarians, especially those at Purdue University Libraries, have focused their efforts in support of information literacy and instruction, there is increasing interest in developing partnership models for research collaborations (Brandt 2007). Numerous discussions in the literature engage in how librarians can develop relationships with scientists and social scientists related to data management, and describe pilot programs to do so (Brandt 2007; Garritano & Carlson 2009; Walters 2009). There is also a history of librarian partnerships in the digital humanities, often through the creation of digital humanities centers, in which scholars may receive support for research projects. For example, assistance with digitization or text analysis (Vandegrift & Varner 2013; Posner 2013; Gold 2012; Svensson 2010; Zorich 2009; Zorich 2008).

This study also is framed by lifecycle models of data management and research collaboration. There has been significant interest among librarians and others involved in data management in recent years about data curation lifecycles, a phrase that refers to how data are acquired and cared for throughout their production, acquisition, use, and preservation (Carlson 2014). One of the most cited of these models is the DCC Curation Lifecycle, developed at the University of Edinburgh’s Digital Curation Center (DCC). This model is designed to aid the planning of curation and preservation activities, and the long-term continuity of access to digital materials (Higgins

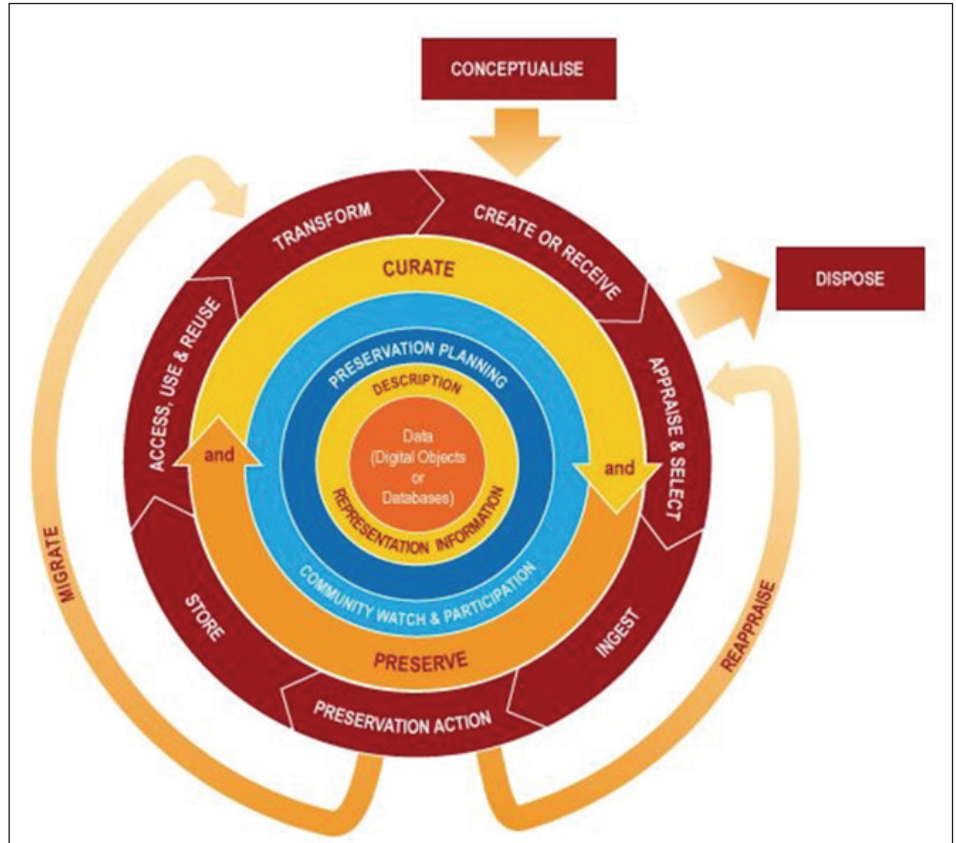


Figure 1: DCC Curation Lifecycle Model

2008). Accordingly, it is largely focused on activities directly related to curation and preservation, and presents a model to which more granularly-defined local practices could be mapped. The model, seen in Figure 1, places the digital object at the center, with central rings representing curatorial actions applicable across the entire lifecycle of the object and outer rings representing sequential or occasional actions that are performed upon the data. While this is a robust, generalized framework for planning, it is also a framework that was created with a specific purpose – digital curation. While curatorial activities and responsibilities were well represented in the model, the scholarly processes that drive the creation and use of digital objects are under-represented.

Other models (DDIAlliance.org 2013; Green & Humphrey 2013; Vardigan et al. 2008) have inverted this focus on developing a

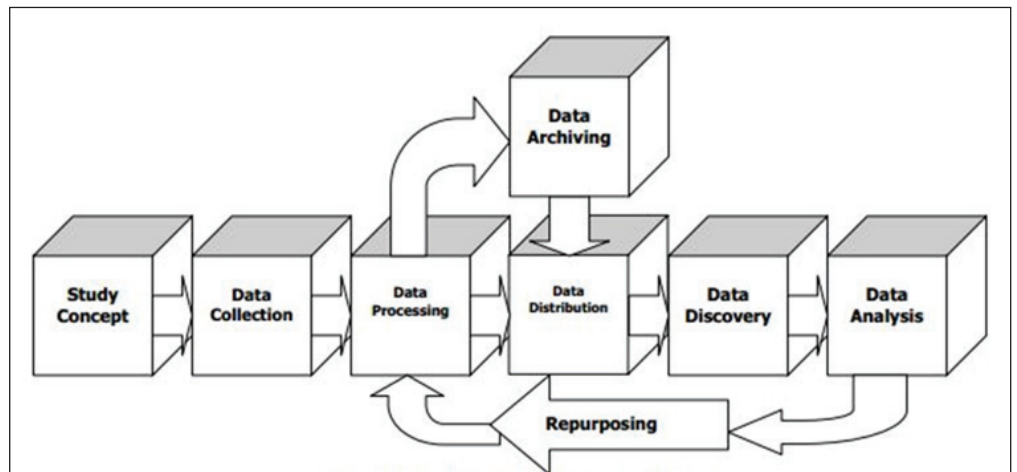


Figure 2: DDI Combined Lifecycle Model

model of data-based research that feeds curatorial processes. Taking the Data Documentation Initiative (DDI) Combined Lifecycle Model (Figure 2) as an example, the lifecycle begins with the genesis of a research study and progresses through a number of stages of data preparation and use, with a step for data archiving and distribution. This view is researcher-centric and underrepresents curatorial processes.

Designing a practice to integrate two different lifecycle models presents a challenge. For the project presented in this case study, the practice must serve both research and curatorial goals: first, by providing ongoing research access to primary source documents, facilitating qualitative coding of the documents and ultimately the creation of qualitative and quantitative data sets; and second, by simultaneously incorporating the curatorial steps required to create the lasting collection of primary source documents, a research database, and data that are appropriate for long-term curation and preservation. The researcher and the library units involved in this project envisioned mutual benefit in building a process that could use research steps to facilitate curation and, in addition, employ curatorial techniques to facilitate research. Accordingly, this case study sheds light on a question central to research on integrated models of the data lifecycle: can digitization processes be designed in a manner that feeds directly into analytical workflows of social science researchers, while still meeting the needs of the archive or library concerned with long-term stewardship of the digitized content?

Answering this question, from the standpoint of an academic library, leads to two subquestions. First, what are the intersections and alignments between scholarly workflow and curatorial workflow? Second, what are the implications of these intersections and alignments on research and curatorial lifecycles?

The Project

Since the mid-1970s, as an advocacy technique in support of human rights, Amnesty International (AI) has produced periodic, almost daily Urgent Action (UA) Bulletins (Rydkvist 2013). These Bulletins are shared with members of its UA network, who are asked to write direct appeals on behalf of individuals whom AI believes to be at risk of human rights violations. Examples have included action on behalf of people who may be tortured, disappeared, or detained illegally, or severely mistreated while in detention. The Bulletins themselves are one- to three-page informational alerts advising members to write quick messages directly to officials in violating governments. In addition, the Bulletins advise members on how to raise issues of concern in each specific case. Concerns may range from protecting the affected person's physical well-being to other forms of compliance with relevant principles of human rights protection.

The UA Bulletins collection provides a detailed record of a major human rights organization's transnational advocacy on behalf of individuals over more than four decades. Data can be drawn from the documents to serve as indicators of how human rights concerns changed over time, as well as the nature of human rights threats in different countries and different periods. The documents also provide a unique window into the mobilization of the human rights movement during a crucial time period in the development of international human rights law (Clark 2001). The digitized collection will be of use to researchers, as well as journalists and attorneys who can refer to the documents as primary evidence from the historical record.

The project to digitize the AI UA Bulletins was initiated for several reasons. The researcher, a faculty member in Purdue's Department of Political Science (Principal Investigator [PI]), had served for a number of years as a volunteer on Amnesty International-USA's (AI-USA) Archives Advisory Committee. In this capacity, she learned of the need to preserve the early records of AI-USA, the United States branch of the global human rights organization. The AI-USA offices, however, housed additional documents with significant research value that were publications of AI's International Secretariat (AI-IS), the organization's international headquarters in London. These documents included the UA Bulletins and associated documents as they had been processed for distribution to members of the network in the United States. While the preservation needs for documents created by AI-USA were being addressed with the establishment of its organizational archives at Columbia University in 2007, digital preservation of the UA documents originally created by AI-IS were ultimately deemed out of scope for Columbia's collecting practices.

Between 2007 and 2011, the researcher engaged in extended conversations with staff from AI-IS, AI-USA, and the Amnesty International USA Archives (Columbia University, n.d.) about developing joint digitization and research as a stand-alone project related to the UA Bulletins processed and issued by AI-USA. After permission to pursue funding for digitization and research with the documents was approved by AI-USA, the researcher contacted the Purdue Libraries. With the Libraries, discussion centered around how to prepare the UA Bulletins as a publicly available collection in conjunction with the PI's research process, as well as how best to incorporate them into the Libraries' digital collections. A funding proposal was developed that sought to combine the strengths of the librarians' archiving, technical, metadata and research data expertise with the researcher's scholarly human rights expertise, and contacts at AI-USA and AI-IS, who saw the benefit of a digitized collection of these particular documents. AI-USA agreed on the general outlines of the project as envisioned and agreed to share the documents. A competitive grant from the Purdue University Office of the Vice President for Research funded the project (Clark & Bracke 2012). The proposal was to combine library standards for digitization and digital collections, as well as additional researcher- and practitioner-driven metadata and coding strategies. The collaborative research would result in a searchable, e-Archive primary source collection that would also benefit the human rights organization, as well as a human rights dataset for researcher use, with the potential for expansion into a numeric dataset compatible with other international data sources.

Working with AI-USA required extensive consultation, both before and after funding was secured, to ensure that each of the parties' needs and interests, and sensitive information concerns, would be taken into account. Variation in the timelines and organizational approaches of each of the three parties (library, researcher, and human rights organization) posed further challenges. While these logistical issues slowed progress as the project got off the ground, in retrospect it was a necessary feature of the collaborative process.

Research Process

Processing Workflow

Archival best practices were established for the handling of the documents during digitization and post-processing reassemble. This ensured the documents could be sent along to their

permanent home at the Amnesty International USA Archives at Columbia University in a good archival state.

The digitization process (Figure 3: 1.a Digitization) was standard, with the exception of the creation of the Optical Character Recognized (OCR), full text PDF derivative. High resolution and high quality OCR were necessary for accurate topic modeling by the PI and her research team. NVivo software (QSR International 2014) was used by the PI to code the digitized documents. The quality of the processed PDF documents was crucial for text recognition and topic modeling in the NVivo software for accurate and comprehensive coding. Digitization was driven by the need for processed documents to feed into the coding progression. In this scenario, it became a challenge to keep up with the need for high quality derivatives, which were time and labor intensive to produce, and the need for documents to code. Ultimately, these activities aligned such that the digitization and coding co-occurred in real time (Figure 3: 1.b. Coding).

Data and Metadata

AI-IS and AI-USA each provided a data source documenting records of UA Bulletins and associated documents from 1974-2013. These sources had been independently maintained, resulting in differences in the underlying data. Each contained some unique information, and some records were incomplete in one source or the other. Combined into a single metadata master file along with technical metadata captured during digitization (Figure 3: 1.c Data

Merge), the two sources provided comprehensive information such as the organization's internal document numbers; dates and countries addressed; document types; and some details of the case. The combined file is being used as master metadata file for the public-facing primary source digital collection and as a basis for a research database for the PI (Figure 3: 2. Metadata & 3. Collection).

In adherence to library science best practices, we identified three human rights authoritative vocabularies and used them, in combination, to create a controlled vocabulary for the project that would supplement ad-hoc keywords assigned by AI-IS and AI-USA in each data source. The combined authoritative vocabularies include HURIDOCs' Micro-Thesauri: A Tool for Documenting Human Rights Violations; 'Witness Media Archive Topic Terms' published by WITNESS, a human rights NGO, and the 'Universal Human Rights Index Research Guide' produced by the United Nations Office of the High Commissioner for Human Rights (HURIDOCs 2010; United Nations Office of the High Commissioner for Human Rights n.d.; Witness n.d.). The PI and her research team combed the vocabularies to identify semantics that closely align with her research interests as well as the descriptive terms used in the two Amnesty International data sources. The development of the controlled vocabulary was used to develop coding structures for content analysis within NVivo. This allowed the research team to create an export file within NVivo ('node extracts') that listed each code applied to a document. These node extracts were,

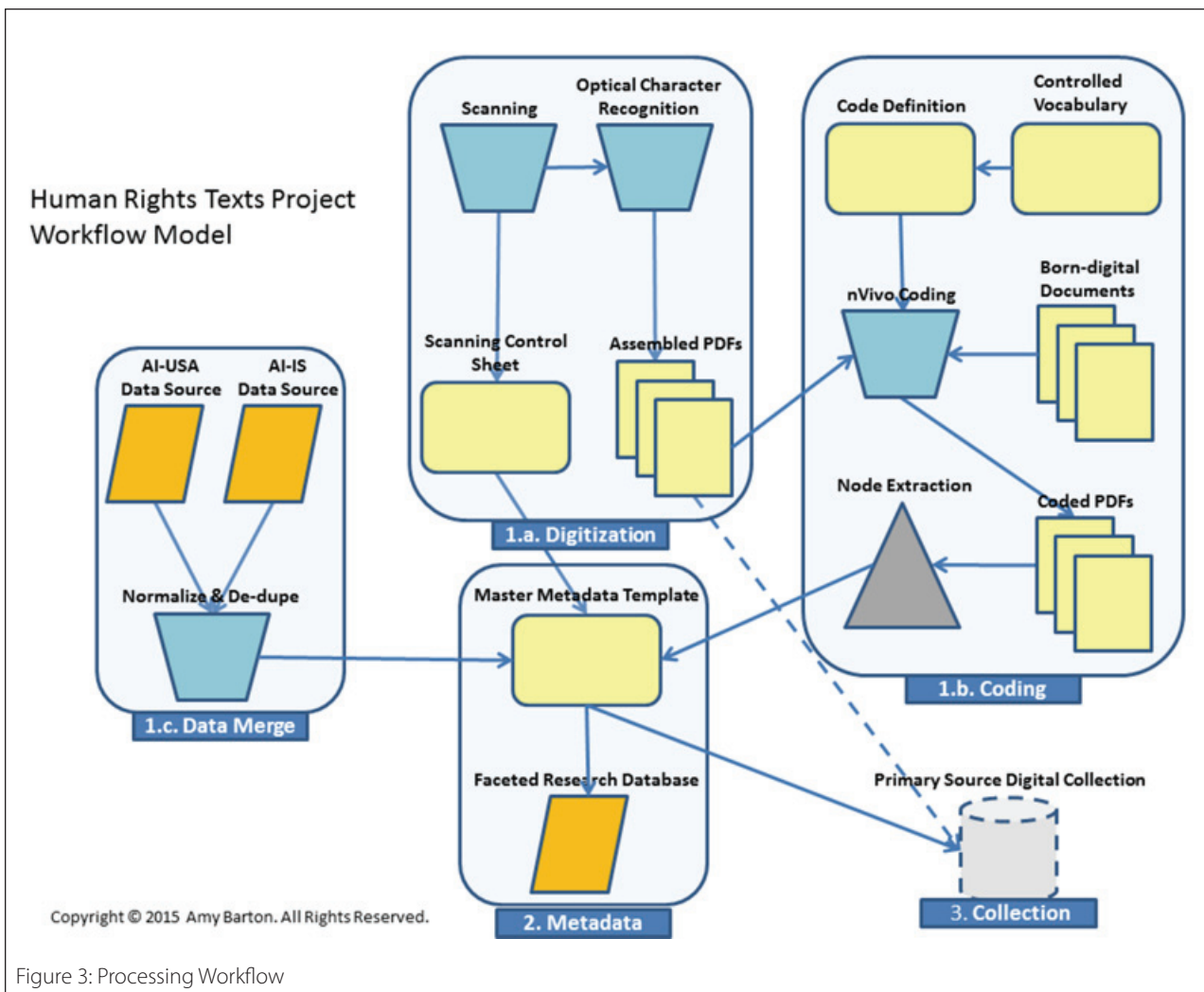


Figure 3: Processing Workflow

in turn, added to the metadata master file by the Libraries. This aligned indexing terms between the researcher’s NVivo research files, the master metadata file, the digital collection, and the research database.

The controlled vocabulary we developed will be shared with AI for possible applications in their own data sources. Interoperability and metadata exchange opportunities in any future projects with AI are more feasible if the concepts and terms are standardized in all parties’ data sources.

Findings and Discussion

This research project was intended to explore whether digitization processes can be designed in a manner that feeds directly into content analysis workflows of social science researchers, while still meeting the needs of the archive or library concerned with long-term stewardship of the digitized content and data. The authors sought to understand the intersections between scholarly workflow and curatorial workflow and their implications for research and curatorial lifecycle. The project illuminated both opportunities and challenges for advancing such collaborations.

Intersection of workflows

One of the key findings of the project was that, while some of our ideas about integration were correct, there were significant difficulties in aligning workflows between library and researcher from a scheduling point of view. Areas of success in aligning workflows included developing shared standards for file naming, application of the controlled vocabulary, and extraction of code

structures from NVivo to provide subject enrichment of descriptive metadata being processed from AI-IS and AI-USA data sources. The successful extraction of code structures for descriptive purposes demonstrated that qualitative coding processes can be leveraged in metadata creation. Despite these points of overlap between the two, a fundamental challenge was achieving alignment in the context of a grant-funded project with time constraints.

The timelines associated with a grant-funded project required both parties, library and researcher, to begin their work as soon as possible. The first issue that arose was the need for a formal agreement between Purdue and Amnesty International prior to shipping documents for scanning. While this process went relatively smoothly, it did result in a delay of several months in having the ability to begin scanning of documents. While graduate assistants working for the researcher were able to begin their coding process with newer documents, available in born-digital formats from AI-IS (Figure 3: 1.b Coding) that could later be matched with scans of the same documents from AI-USA, the delay in beginning the scanning process would prove problematic later in the process as it was difficult to maintain a steady supply of scanned documents for coding. The second issue that arose, from a project planning point of view, was that initial planning was done based on photographs of sample documents from the collection taken by the PI during a visit to the AI-USA archive. Once documents were received, it became apparent that OCR processes would be slower than anticipated due to document condition. A third challenge resulting from the grant-driven timeline was with the use of student labor in scanning. When the documents were

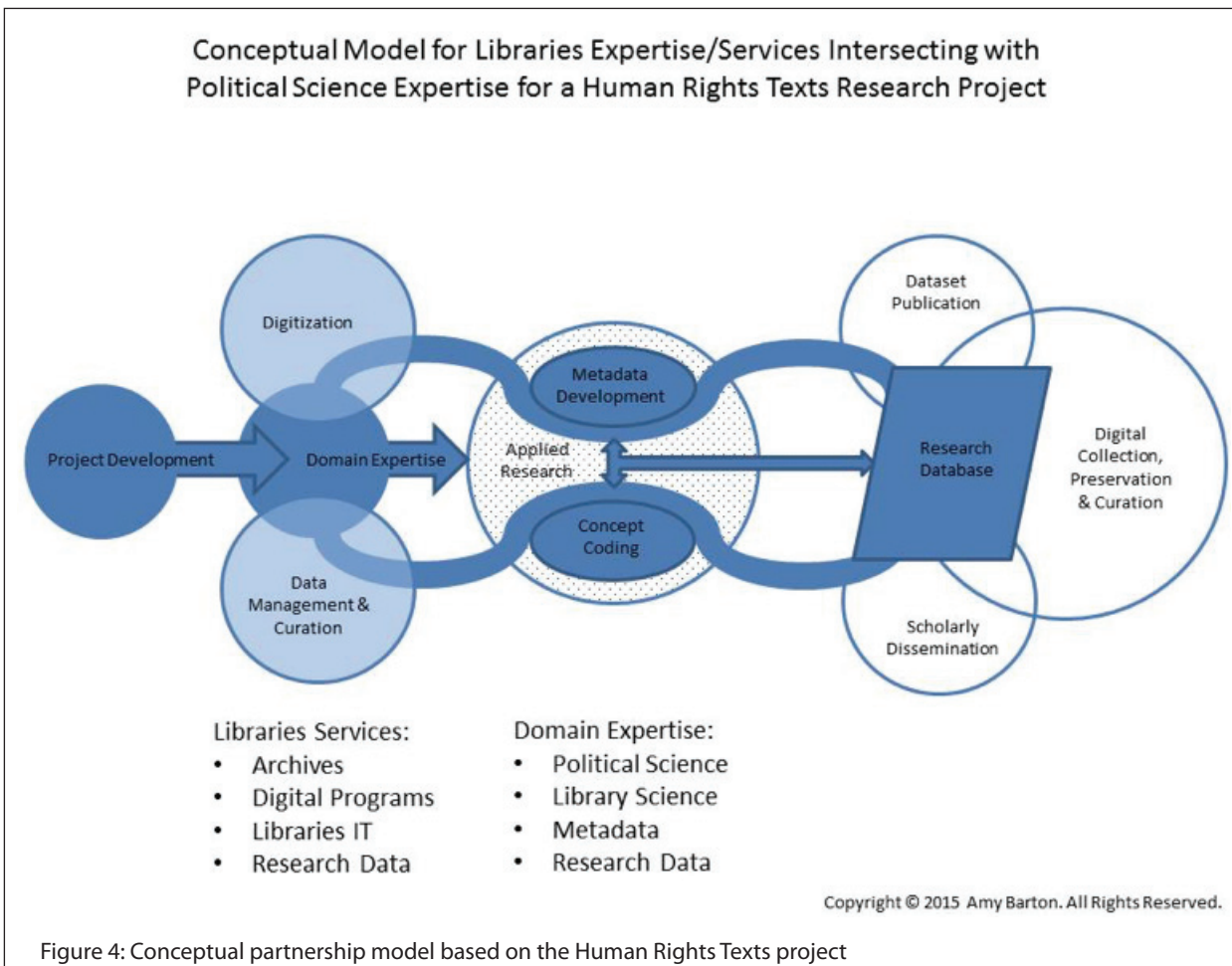


Figure 4: Conceptual partnership model based on the Human Rights Texts project

received for scanning it was mid-semester, making the hiring of new student workers more challenging than it would have been at the beginning of the semester. Additionally, there are inconsistencies in productivity inherent in the use of student labor. Students are often less available for work, at short notice, during exam periods and during semester breaks.

Intersection of research and curatorial lifecycle

Working through the phases of the research project, we discovered that the intersections and alignments of research and curatorial lifecycles include collaborative research, the alignment of research and curatorial processes, and the development of a new research partnership model. Due to the way the project unfolded, with delays, digitization challenges, and labor and time constraints, much of the research had to be done in real-time. The research model worked well for the project. The PI and her research team, and the faculty from Purdue Libraries and their digitization team, were able to identify research problems and processing issues that impacted research, then work together to produce the intended research outcomes.

The Libraries supported the project with services such as digitization, digital content management and digital collection development. However, our experience in this project went beyond typical services. Two Libraries faculty collaborated with the political scientist in research that resulted in the development of a dataset (populated master metadata file) that further facilitated the development of a research database and a public-facing, primary source digital collection (in

development). We felt this was a fairly unique situation in that the Libraries faculty was engaged in research alongside the political scientist in the context of research data development, metadata application, data management and curation. Below, we present a model that explores the process and components involved in a successful research collaboration based on the Human Rights Texts project.

The conceptual model (see Figure 4, page 31) represents scholarly collaboration between political science and library science experts, along with Libraries services and resources, to conduct research that resulted in metadata and data development, data curation throughout the data lifecycle, digital collection development, and scholarly outputs and dissemination.

In the model, the dark blue represents the research continuum from start to completion. The light blue circles on the left of the model represent Libraries services and resources that supported the research process. The circle in the middle represents political science and library science expertise converging in real-time research. Finally, the white circles on the right of the model represent outcomes.

The seeds of the project were sown by the PI as early as 2007, but 'Project Development,' in the first dark blue circle, began after the Libraries and the PI had discussions and committed to the project. Funding was sought and awarded. The next point on the continuum, 'Domain Expertise,' the second dark blue circle on the continuum, overlaps the first set of light blue circles representing

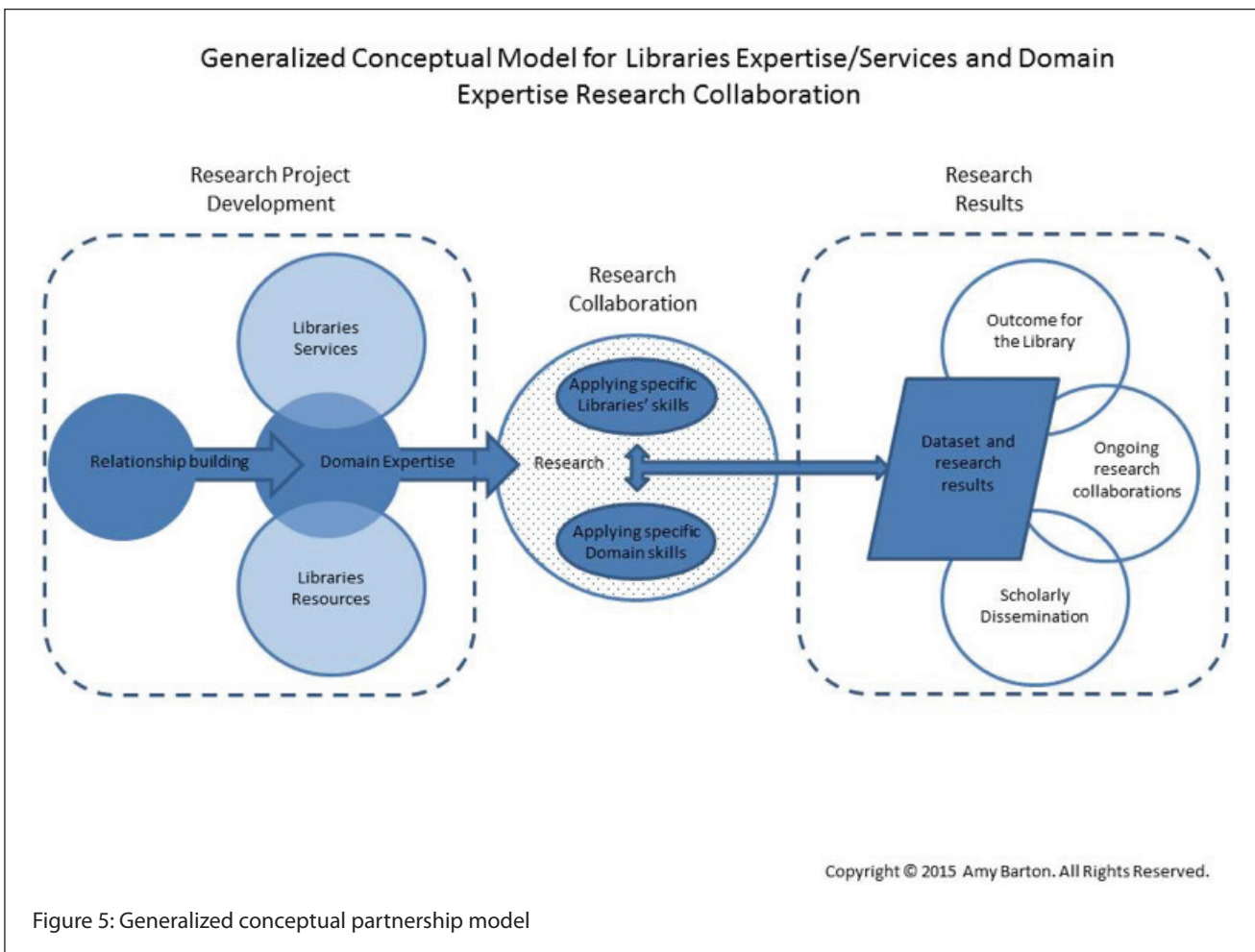


Figure 5: Generalized conceptual partnership model

Libraries services and resources. At this point, Archives and Digital Programs established standards and workflows for digitization, while the Libraries established data management and curation standards and workflows in consultation with political science and library science experts. This is also the place where the PI and metadata specialist developed the controlled vocabulary to be used throughout the project. In the model, here the continuum undulates to represent the PI working specifically with her research team to develop processes for NVivo coding, while the metadata specialist researched the development of the master metadata file and the data sources merge workflow. The Libraries faculty and the PI come back together in the middle circle to conduct research - interacting as researchers, addressing real-time problems, and producing research data. Here again, the continuum undulates to represent the PI evaluating her coding results on a subset of data, and the Libraries faculty working with the Libraries IT to develop the research database based on the data-populated master metadata file. Finally, the PI and the Libraries researchers converge once again to evaluate the outcomes of the project: the refinement of the --research database; the development of the digital collection; long term data preservation and curation; scholarly communication via dissemination of research results; and the publication of the raw dataset through the Purdue University Research Repository (PURR).

Having described the development of a research collaboration and partnership model for a very specific research project, we now explore how the model could be generalized and applied to other academic libraries and research collaborations, inclusive of libraries services and expertise. The generalized model (see Figure 5, page 32) represents on a research continuum from start to completion the major components of the process that can provide guidance in establishing a Libraries-domain expertise research collaboration.

We previously discussed in detail how this conceptual model applied to a specific research project. Taking a step back, one can see the three major components of this model:

- research project development,
- applied research collaboration,
- tangible and intangible research results, which includes scholarly impact and dissemination.

The research project development component includes relationship building; project development and planning; identifying domain expertise combined with library expertise to address the research problem; and the library services and resources that will support the research continuum from start to completion. The applied research collaboration component occurs after all the project planning, workflows, and processes have been established. In this component, combined domains apply research methods to address the research inquiry and to produce data. This component leads into the last component, research results. This includes the intangible results - solidifying relationships and continued collaborations - and the tangibles - data production, data curation, data management, data publication, and scholarly communication and dissemination.

Based on the successful outcomes of the Human Rights Texts research project, further exploration of this model and the application of this model - perhaps even a component to operationalize the model for project management - will be pursued.

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