Human Security Informatics, Global Grand Challenges and Digital Curation

Anne J. Gilliland
Department of Information Studies
University of California, Los Angeles

James Lowry
Liverpool University Centre for
Archive Studies

Abstract

This paper argues that addressing humanitarian issues and concerns about social and societal inequities that are integral to many societal grand challenges needs to become a concerted and sustained focus of digital curation. It proposes a new framing emanating out of the archival and record-keeping community – Human Security Informatics (HSI) – for human and humanitarian-centered rather than data, artifact or research-centered digital curation research and development. Human security is proposed as a new concept that promotes the protection and advancement of individuals and communities. It prioritizes individual agency and rights, and human-centered and multidisciplinary approaches that support democratization, transparency and accountability in trans- and supra-national governance and policy-making. Within this ethos, HSI specifically targets data, documentary, record-keeping and other accountability and evidentiary components of societal grand challenges. In so doing it necessarily highlights curation grand challenges, and demands the reorientation of some fundamental assumptions of digital curation relating to technological, economic and policy infrastructure priorities and standards, trust, scale, universality and content-centricity. To illustrate its argument, two research endeavors are discussed. The first is an Archival Education and Research Initiative (AERI) study that analyzed six areas of societal grand challenges and identified key, and often overlooked, areas where HSI could and should contribute. The analysis also surfaced grand challenges facing the digital curation community itself, many with particular applicability to digital curation capacity, processes and priorities in bureaucratic archives. The second is the Refugee Rights in Records (R3) Project, an example of wide-ranging HSI research that is focused on data, social media content and record-keeping, as well as on individual human rights in and to records and documentation. In both examples the paper identifies several specific areas of relevance to digital curation where an HSI approach would be appropriate.

Introduction

Addressing humanitarian issues and concerns about social and societal inequities that are integral to many societal grand challenges needs to become a concerted and sustained focus of digital curation. Consequentially, this paper proposes a new framing emanating out of the archival and record-keeping community – Human Security Informatics (HSI) – for human and humanitarian-centered digital curation research and technological development, as well as implementations in policy arenas and professional practice. The paper provides some background for the emergence and definition of HSI, with reference to two research projects and areas of need for new digital curation approaches that they have surfaced. First, it reports on the methods and findings of a study sponsored by the Archival Education and Research Initiative (AERI) that analyzed six different societal grand challenge areas and identified several key, and often overlooked, data, documentation and record-keeping concerns where HSI can and should contribute. The study findings also highlighted how several of digital curation's own grand challenges were integral to these concerns, many with particular relevance for how bureaucratic records offices and archives need to build digital capacity. The paper then describes the methods, activities and some of the findings to date of the Refugee Rights in Records (R3) Project, including a proposed platform of individual human rights in and to records that could have significant implications for digital curation processes and priorities. It concludes by suggesting several concrete areas where research and development in HSI-oriented digital curation approaches needs to be focused.

Background

Many of the advances in digital curation in terms of technology, policy, and standards and best practices have been driven by the scientific and social scientific data archiving communities, as well as the open scholarship movement. Recent momentum in digitizing historical and cultural collections of primary material in order to increase use, and particularly to support digital humanities research and wider integration into educational activities has also resulted in the development and implementation of new digital curatorial practices by research libraries and other institutions with relevant special collections. Simms and Jones (2017) discuss, with reference to the results of government- funded research, how awareness has grown globally of the need for data management plans (DMP) for these endeavors to ensure that they comply with "the growing international base of principles and policies that can cross national space to address open scholarship and research data," and can produce FAIR (Findable, Accessible, Interoperable, Reusable) data. They also note how European Union Horizon 2020-funded projects are required to explain in their DMPs not only how their data will be FAIR but also "as open as possible, as closed as necessary" (European Commission, 2016). However, such advances have required, and continue to require, massive and consistent infrastructural investment (Borgman, 2017) and that investment in turn requires institutional, national and societal will and commitment and constant watchfulness regarding personal privacy as digital capabilities multiply (Ohm, 2010). As Yakel (2007) and Gilliland (2014) have noted, digital curation has become an umbrella concept under which electronic records management and the archiving of

bureaucratic records are also increasingly situated. However, lacking the same levels of infrastructural and digitization investment and attention that has been made in sources and collections that are seen to be of more scholarly, education or cultural value, much of the world's archives of official government and other bureaucratic records remains in either analog or inadequately curated, and certainly not FAIR digital form. This situation is exacerbated by the absence of harmonized privacy and access policies, transnational collaboration between archival institutions holding these records, and, too frequently, political will (ICA, 2016).

In place of robust infrastructural investment, many of the national and state archives around the globe rely on partnerships with corporate entities such as those brokering online genealogical research services to digitize particular records and support providing access to them online, usually behind a paywall. The assumptions here are that the user is likely to be avocational and is also prepared to pay for the content, or at least that the user is not seeking to use the digital content within sensitive legal or evidentiary processes that might require an entirely different form of presentation, description and certification of the same digital content. Moreover, digital curation initiatives tend to be heavily centered around the data, records or documentation, as well as their potential use in scholarly research, rather than around the interests, rights and access needs of the creators, co-creators and data subjects to which they pertain. Born-digital and digitized bureaucratic records present particular challenges in terms of protecting personal privacy and supporting civil and fundamental human rights of those creators, co-creators and data subjects, as well as ensuring that those records are available in a trusted form to those who must rely upon them.

Beyond this, the digital curation community as a whole needs to make a concerted and strategic effort to promote digitization, digital preservation and access in institutional archives that are struggling for autonomy and survival within poverty-stricken, conflict- ravaged or ideologically-controlled nations but that hold key records for their own currently displaced and historically diasporic populations. Currently, digital access to these materials may be limited to what can be gleaned from online metadata (if any exists or is allowed to be disseminated online under local data protection requirements) or physically to those who can both travel to the relevant repositories and are permitted access. Lack of rich, interoperable, machine-actionable and globally identified item-level or within-item metadata, as well as inconsistent, incommensurate or dynamically shifting legal restrictions on accessing materials across national and juridical boundaries, may also mean that official records are not retrievable, compilable across fonds or repositories, or usable in any form, either remotely or locally. And yet this may be exactly what hundreds of millions of individuals around the world who are the subjects of those records, or descendants of or otherwise connected with those subjects, may wish, or, due to humanitarian emergencies, human rights or social justice claims, or simply the human need to understand more about what happened to their parents, grandparents or great- grandparents, may need to do (Gilliland, 2017; Setting the Record Straight, 2017). Today the UN estimates that almost 70 million people are displaced from their homelands and that figure is growing rapidly, while 258 million people live in a country other than that in which they were born. For the latter, the immediate implication is that they will have records in a minimum of two countries that will quite possibly be relevant at different points in their lives but that they cannot easily bring together. These numbers increase by hundreds of millions when historical diaspora populations are considered.

Assessment of the potential of and desirability (in terms of feasibility, appropriateness, incentives, orientation and moral imperative) of transferring and

applying the technological and policy infrastructure that has developed to date around digital curation to the creation, digitization and management of bureaucratic records has notably received scant research attention. This is especially the case where less scholarly use is envisaged but where the accessibility and trustworthiness of records may be crucial to the humanitarian, social justice and affective needs of those to whom those records pertain. Christen (2018) has proposed, with reference to materials held in archives and special collections that are created by or are about Native American communities, that mass digitization should be carried out within individual institutions and potentially through strategic coordination of institutions with related holdings according to "a continuum of vulnerability." Gilliland (2018) has similarly called for a "continuum of care" in archival metadata creation that would address the particular and evolving access needs of vulnerable populations to digital archival content. Each of these actions would involve fundamental reorientation of the entire scope of current archival digital curation approaches, and priorities, from appraisal and collection development all the way through interfaces for personalized delivery of materials to qualified requestors.

A Human Security Informatics (HSI) Approach

With this background in mind, this paper argues that Human Security Informatics (HSI) provides a new framework within which to consider digital curation needs, imperatives and approaches within bureaucratic archives and other record-keeping entities. Human security is a new concept that has emerged out of research in the archives and record-keeping community (Gilliland and Carbone, 2019). Applying the paradigm of human security that was defined by the United Nations Development Program (1994) to the area of informatics, broadly define, HSI promotes the protection and advancement of individuals and communities and their rights. It prioritizes individual agency, and human- centered and multidisciplinary approaches that support democratization, transparency and accountability in trans- and supra-national governance and policy-making. It integrates human rights, human development and social justice-based perspectives that take into account political, economic and social variables. Such a focus is particularly relevant to electronic record-keeping and bureaucratic archives. Informatics, in an HSI context, is understood to include technological, policy, practice and expertise aspects relating to the conceptualization, creation, processing, management, access, re-use of digital data – all the aspects considered to be integral to digital curation – as well as loss and absence of digital data, records and metadata and the evidence and knowledge they provide, and the curatorial strategies we might adopt to address those.

The following sections describe the research out of which this concept developed and provide examples of how it has direct relevance to digital curation concerns that remain to be tackled within archives and other record-keeping entities.

AERI Societal Grand Challenge Initiative

AERI is a global collaborative effort to promote state-of-the-art in scholarship in archival and record-keeping studies, as well as to encourage innovation in education and professional practice locally and worldwide. AERI has been engaged since 2008 in a

number of research and infrastructure-building initiatives, among them the promotion of research and development relating to societal grand challenges. Societal grand challenges, especially those that have global impact, are massive scale, multi-stakeholder complex and paradoxical problems that threaten entire regions or even the world that have been identified by multiple entities and communities. They need to be tackled from many different perspectives simultaneously at both an applied and a theoretical level. They often have significant local and transnational policy, governance, economic, environmental, health and safety, cultural, identity and ethical dimensions. They may also imbricate the well-being of nations, societies, local communities, families and individuals in complex and often inequitable ways not only in their capacity as historical and memory resources but also as evidence in the immediate and longer terms.

A working group of AERI researchers drawn from the US, Canada, Australia and China defined six societal grand challenge areas: Corporate Governance and Social Responsibility, Climate Change, Global Health, Human Rights and Social Justice. These areas were selected because they had been identified from a variety of perspectives by multiple governments and NGOs, think tanks and scholarly organizations, foundations, and industry and community interests around the world; and because there was corresponding pre-existing research expertise within the AERI community. Based on close reading, iterative and inter-group coding, and group discussions of priorities and concerns expressed in reports, position papers, policy statements and platforms, a core set of record-keeping and digital curation concerns surfaced repeatedly. These concerns relate to the role and use of records and data in supporting accountability, sustainability, decision-making, assessment, memory and recovery, social justice and human rights. They include compliance management; database, classification and records/data inadequacies and incompatibilities; tensions between data access and data protection, especially for vulnerable populations; scalable systems and services infrastructure development; and capacity building in record-keeping and digital curation expertise as well as cross-field education. Most of these have not been a concentrated locus of research within or across societal grand challenges research. In fact, they are aspects that have often gone unrecognized and thus continue to contribute to the intractability of the grand challenges, although some have been identified generally as grand challenges faced by the digital curation field. Four additional areas that emerge from the AERI research demand particular attention by the digital curation community from an HSI perspective:

1. *How best to encourage and effect digital global integration and granular accessibility of relevant archival and record-keeping systems and their contents?* Such integration and accessibility, however, implicate all of the capacity and priorities issues discussed earlier, as well as particularly complex questions of personal data protection and privacy, security, surveillance and commercial exploitation.

2. *How to build trustworthiness into digital systems creating and preserving evidence under sub-optimal and "in the trenches" conditions?* NGOs, community archives, human rights witnessing groups and many other organizations that operate outside the auspices of formal information and memory institutions, such as government archives and academic special collections, create digital data, records and other content that needs to be curated, from design to final disposition, in ways that will support organizational accountability, integrity of data and records as evidence in legal and humanitarian contexts, and long-term human rights and scholarly analyses. It seems clear that best practices, standards and solutions designed for large institutions with specialized facilities, expert and dedicated

staff and other resources do not scale down effectively or appropriately to these contexts, and that best practices for those working under these conditions need to be addressed and alternate kinds of capacity developed.

3. *How to account for cultural, community and affective considerations relating to record-keeping, archives and memory in developing best practices and standards?* Digital curation approaches need to take into account the priorities, effects and affects of their curation choices on vulnerable populations, for example, when records have been used as a mechanism of oppression, where there is a history of cultural documentation and traditional knowledge of particular communities being appropriated by cultural or bureaucratic organizations, where communities operate within oral record- and memory-keeping structures, and where those who must interact with records to access their own rights but have no bureaucratic or sometimes textual literacy or relevant language skills.

4. *How to re-orient institutional- and nationally-based repositories' conceptions of their societal role, local responsibilities and constituencies, as well as their priorities in investment in digital infrastructure in order to support participatory and humanitarian-centric practices?*

Refugee Rights in Records (R3) Project[1]

Displacement crises raise complex interacting issues about nation-states, laws, borders, human rights, citizenship and identity, security, resource allocation and information and communication technologies that frequently centre around issues of data, records and other documentation and their management. An ongoing collaboration between the University of California, Los Angeles' (UCLA) Center for Information as Evidence and Liverpool University Centre for Archive Studies (LUCAS), the R3 Project is an example of HSI research that is focused on the curation of data, records, personal accounts and social media content in the context of one particular global grand challenge – massive population movements resulting from forced displacement and the consequences for affected individuals, families and communities across generations, jurisdictions and locations.

Building out from the findings of the AERI Grand Challenges research, and with an HSI framing, the R3 Project examines digital curation concerns in the context of the global grand challenge of forced displacement and migration. It strategizes with parallel projects with similar needs and concerns, and examines the applicability of other developments that are deploying information, communication and security technologies in support of humanitarian needs and human rights, such as blockchain, multimodal mobile interfaces and drone-based wifi provision. It has collected data about digital curation needs through ongoing multi-stakeholder symposia and other forums held in 2018 in Budapest, Dublin, Los Angeles, Zagreb, Malmö and Yaoundé; analyses of cases reported in the English and Arabic-language media; intergovernmental agency and NGO reports; analyses of record-keeping requirements to perform particular kinds of personal activities, such as making and substantiating an asylum claim; and interviews in Turkey and elsewhere. The project has identified key types of data and records needed by or created about displaced persons (e.g., biometric, DNA and remotely sensed data), as well as the legal requirements affecting the acceptability of these materials by border,

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1 R3 Project: https://informationasevidence.org/refugee-rights-in-records

asylum and other legal and bureaucratic processes in different countries and the challenges they present both refugees and collecting agencies, for example, in terms of portability, compilability, long-term preservation and management.

Besides preserved historical vital and property records, the kinds of records that are most in question are the very kinds that in their analog form are particularly challenging for archival appraisal because of their personal data contents and bulk (Cook, 1991; Powell, 1991-92). Case and individual files are particularly important, e.g., relating to schooling, institutionalization, health, military service, police actions, pensions, social welfare, or court proceedings. Even in the wealthiest nations, funds to digitize such holdings are often unavailable and digital access is a low priority, given the sensitivity of information they may contain, data protection requirements for personal data they might capture and the fact that they may be considered to have low scholarly value due to their routine and repetitive nature, and their sheer bulk. In fact they may not be retained at all, or only some random or stratified sample may be archived as evidence of the nature of the bureaucratic processes to which they relate. Obviously, a sampled file that is not one's own is unlikely to be useful to many requestors seeking personal records.

Many global grand challenges have an intimate connection to particular locales where robust archival infrastructure are in place, and are often linked to the inabilities within those locales to manage exactly those kinds of records and make trustworthy digital copies available. It is not surprising, therefore, that in the poorest nations and in nations in the throes of or recovering from conflict, peace negotiations, aid agencies and civil society entities have identified the need to design, implement and manage digital systems to generate and maintain trusted vital records, such as land cadasters, as a fundament to societal stability and recovery. Such developments require robust infrastructure, continuous funding support, trained and trusted professional expertise, and consistently applied security and access policy regimes, as well as well as being able to support remote or extra-national access by subjects and their descendants and to validate or verify the identity and purpose of their access requests. Moreover, intergovernmental organizations and international aid organizations, both large and small, also struggle with managing reference requests and deriving historical knowledge from extensive case files for refugees, migrants and the missing. They have a particular need for DMPs and digital curation expertise. They struggle with the creation, management, preservation and reference services for records they create often while working under sub-optimal conditions, with few or no resources to dedicate to information or records management, and in some cases with considerable external threats (e.g., hacking and sabotage) to the integrity of the systems they are using and data that they are transmitting.

Finally, despite recent discussion of the rights of research subjects (Geraghty, 2017) and the attention given to the European Union's 2016 GDPR in terms of data subjects' rights, there has been little contemplation of rights increasingly being sought by those who were not given a choice to being included in bureaucratic records or who need immediate access to their own records (Gilliland, 2017; Setting the Record Straight for the Rights of the Child Initiative, 2017). Dunning et al. (2017) looked at seven examples of social science datasets, several of which come very close to the kinds of information content that might be needed from bureaucratic records by individuals who are themselves subjects, and found that in these contexts, data protection appeared to confound FAIR. Such findings further support calls for the rights of subjects mentioned in records not only to access but also to have a voice in the curation of those records. An HSI approach is not completely co-extensive with the more traditional records- and data protection-centric approaches to access. Instead it requires that a balance must be struck

between the humanitarian and human rights needs for access to and indeed a voice in the control over how the records are managed, with the need also to secure those records for future accountability purposes.

These have been addressed by the R3 Project through the development of a draft platform of Refugee Human Rights in and to Records. This has been derived bottom-up from analyses of the data collected by the project and top-down through the analyses of 16 key international human rights and digital privacy/data protection instruments. This platform of rights, which argues that vulnerable individuals cannot activate their fundamental human rights without access to and a voice in the management of relevant records, is organized under nine rubrics: rights to have a record created; rights to know; rights to records expertise; cultural, self-identity and family rights in records; right to respond and to annotate/rectify; refusal and deletion rights; access, reproduction and dissemination rights; consultation rights; and personal record-keeping rights. The platform has also been mapped onto the International Council on Archives Human Rights Working Group Draft Basic Principles On the Role of Archivists In Support Of Human Rights[2], and has been further refined based on feedback from presentations to and review by multiple stakeholder groups and organizations around the world. These rights and their implications for participatory approaches and decision-making have significant implications for how relevant types of records and data will be curated. Of course, it should also be noted that given the significant national and transnational complexities, economic barriers and security issues that must be addressed, significant inter-institutional collaborations and multi-community partnerships are also going to be essential.

Conclusions and Areas of Ongoing Research

Based on the above findings, in addition to pursuing the platform of rights, the R3 Project is now investigating several related areas: the viability of how to do inexpensive, humanitarian-oriented mass digitization on needed forms of documentation that too frequently are still held in paper form in the archives; digital dissemination and authentication implementations that would support ways in which displaced persons could get acceptable certified copies of personal records remotely, rapidly and at low or no cost; automated techniques for analyzing and then applying granular metadata to content; assisting displaced persons in how to read, understand, or reconcile records that are often bureaucratically opaque, and may well require automatic translation of language or scripts; and supporting secure extra-institutional Cloud-based curation for materials that displaced persons carry, create, access or receive using their mobile phones and/or social media.

Acknowledgements

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2   Internation Council on Archives Human rights Working Group: https://www.ica.org/en/basic-principles-role-archivists-and-records-managers-support-human-rights

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