

Digital Humanities and the Transformation of Archival Practices in Cultural Studies

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To Cite this Article

Dr Akhilendra Nath Tiwary, Dr. Anurag Kushwaha, DR. Parul Saxena, AKANSH GARG, Dr.R.Rakesh , G V NARMATHA⁶," Digital Humanities and the Transformation of Archival Practices in Cultural Studies." *Musik In Bayern*, Vol. 91, Issue 9, Sep 2026, pp36-47

Article Info

Received: 25-07-2026 Revised: 22-08-2026 Accepted: 07-09-2026 Published: 17-09-2026

Abstract

This paper examines specific, documented changes to archival practice produced by digital humanities (DH) methods, reporting concrete findings rather than general claims about digitization's impact on cultural studies. Evidence from the 1st Archival Education and Research Institute (AERI) workshop at UCLA identifies six named, sequential digital-work activities archivists must now perform: selection of documents suitable for transformation, digitization, reformatting or standardizing, application of metadata standards and description, uploading content to a stable server, and maintenance as feedback is received. A citation-metadata study of DH visualization research quantified the field's output directly, curating almost 2,000 resources drawn from 119 core papers published at three specific venues. The Cultural Digitization Scorecard, a named measurement instrument, documented specific national rankings, finding Europe and North America highest overall while noting that China, Indonesia, Mexico, Peru, and Thailand rank comparatively well on specific sub-measures despite lower aggregate scores. A pre-2006 digitization-projects directory listed exactly 293 collections and 242 institutional projects

before ceasing development, now accessible only through the Internet Archive's Wayback Machine. This review organizes these specific findings into comparative tables mapping named archival activities to their documented institutional contexts and cross-referencing preservation-practice challenges against reported technical responses, including Linked Data implementations such as the Sampo portals and FAIR-principle-based data publication. The review concludes that archival transformation in cultural studies is best understood not as a single unified movement but as a set of independently converging, empirically documented practices across metadata standardization, cross-national digitization measurement, and semantic-web-based access infrastructure.

Keywords: *Digital Humanities, Archival Practice, Metadata Standards, Digitization, Cultural Heritage, Linked Data, Preservation, Cultural Studies.*

I. Introduction

Archival practice within cultural studies has historically been organized around the physical custody, arrangement, and description of documents, manuscripts, and cultural artifacts held by libraries, museums, and historical societies. Digital humanities methods have introduced a substantially different operational model, one built around discrete, named, and increasingly standardized digital-work activities rather than the continuous, judgment-based arrangement practices that characterized twentieth-century archival science. The 1st Archival Education and Research Institute (AERI) workshop, held at UCLA, produced a specific, itemized account of what digital archival work now requires. Participants reported that the range of activities which must be performed in digital work include: selection of documents suitable for transformation, digitization, reformatting or standardizing, application of metadata standards and description, uploading of content to a stable server, promotion of the service, and maintenance and enhancement as feedback is received [1]. This six-to-seven-step sequence is significant precisely because it names discrete, separable labor tasks rather than describing digitization as a single undifferentiated process, and because participants explicitly distinguished project phases: many of the cited projects devoted their first years to collection-building, acquisition of objects, and interface design, but as projects enter their second phase, the workshop identified the specific opportunity to chart the quantity of materials, the level of metadata useful to users, digital preservation strategy applied (specifically naming migration or emulation as the two dominant strategies), and integration of the digital collections into university scholarship [1].

The workshop also documented UCLA's own institutional infrastructure at the time of the conference, naming six specific units: the Institute for Digital Research and Education, the Digital Humanities Reading Group, the Visualization Portal, the Experiential Technologies Center, the Center for Digital Humanities, the Keck Digital Cultural Mapping Program, and the revitalized Horn Press [1]. Among twenty workshop participants, three groups assembled specific sets of duties and skills, distinguishing "hard skills" such as research methodology and subject knowledge from "soft skills" such as management, communication, and empathy [1]. This granular, skills-based accounting of digital archival labor is a useful corrective to broader, less specific characterizations of digital humanities as a field defined primarily by its use of computational tools; the AERI workshop instead documents digital humanities archival work as a specific division of labor requiring distinct competencies at each of its named stages.

Cultural studies scholarship has, in parallel, documented how digital humanities methods reshape not only archival labor but the interpretive relationship between researchers and primary sources. Where traditional archival research required physical access to a reading room, often restricted by geography, institutional affiliation, and opening hours, digitized collections and their associated metadata infrastructures allow distributed, simultaneous, and machine-assisted access to the same underlying materials. This shift carries direct consequences for cultural studies research design specifically, since scholars can now query digitized archival collections using text-mining, network-analysis, and visualization methods that were not practically available to researchers working exclusively with physical holdings. This paper reviews this and related literature documenting specific, named changes to archival practice produced by digital humanities methods, with particular attention to metadata standardization, quantified research output, cross-national digitization measurement, and semantic-web-based access infrastructure.

Research Objectives

- To document the specific, sequential archival activities digital humanities workshops and studies identify as required for digital collection-building.
- To report quantified findings on digital humanities research output and citation patterns from named venue-based studies.
- To examine named measurement instruments used to track cross-national cultural heritage digitization progress.
- To evaluate specific metadata-standardization challenges documented in manuscript-digitization research.
- To report named technical infrastructure, specifically Linked Data and semantic web implementations, developed for archival access.
- To identify the specific interpretive and methodological consequences digitized archival access has produced for cultural studies research design.

II. Literature Review

2.1 Archival Metadata Practices for Digital Manuscripts

A study of archival metadata practices and challenges in managing digital manuscripts made a specific historiographic connection: citing Da Rold and Maniaci (2015), the study noted that the study of pre-modern manuscripts, defined specifically as those produced before the printing era, provides valuable insights for digital humanities because each manuscript contains unique elements that serve as authentic evidence of cultural and historical contexts while simultaneously sharing semantic connections across time and place [2]. The same study identified three specific, named physical deterioration threats that preservation practices must guard against: mold, fading ink, and termite damage, citing Ken et al. (2023) directly [2]. The study's core conclusion was that metadata functions as the backbone of sustainable digital collections across institutions and platforms, a finding it grounded in collective evidence from multiple named prior studies rather than a single case [2].

This metadata-centrality finding has direct implications for cultural studies research specifically because metadata standards determine which cross-collection queries and comparisons are practically possible. A collection digitized with inconsistent or non-standardized metadata fields

cannot be reliably cross-referenced against a second collection using different field conventions, effectively fragmenting what might otherwise function as a single, unified corpus for cultural-historical analysis. The manuscript-focused study's emphasis on metadata as infrastructure, rather than as a secondary cataloguing concern, reflects a broader recognition within the reviewed literature that archival digitization's research value depends substantially on the consistency of the descriptive apparatus surrounding the digitized content, not merely on the existence of a digital surrogate for the original artifact.

2.2 Citation Metadata and Research-Output Quantification

Direct quantification of digital humanities visualization research output comes from the Pilaster project, a collection of citation metadata extracted from publications on visualization for the digital humanities. The project reported that the resulting metadata collection, curated and refined since 2019, comprises almost 2,000 resources related to the practice of visualization in the context of digital humanities, derived from an extensive analysis of the citations in a core set of 119 papers published at three different, specifically identified venues [3]. This citation-analysis methodology is significant because it provides a directly countable measure of DH visualization research scope, rather than a qualitative characterization of the field's growth. The Pilaster project's stated goal of supporting the immersion process of interdisciplinary researchers entering visualization design studies within a digital humanities context further indicates that quantified citation infrastructure is itself becoming a named archival-adjacent research product, distinct from but complementary to the digitized primary-source collections that are the more traditional subject of DH archival scholarship [3].

The Pilaster project's methodology, extending recent prior work by the same research group, also illustrates a recurring pattern in the reviewed literature: digital humanities archival infrastructure is frequently built incrementally, through sustained multi-year curation efforts, rather than delivered as a single, complete dataset. This incremental-curation pattern parallels the "second phase" project-maturity distinction the AERI workshop identified for digitized cultural collections generally, suggesting that both primary-source digitization projects and secondary, citation-level research infrastructure projects share a common multi-year development trajectory within the digital humanities field.

2.3 Named Application Areas and Computational Methods

A topic-modeling study exploring the digital humanities research agenda identified specific humanities disciplines the DH movement has demonstrably impacted, naming literature, history, linguistics, arts, African American studies, rhetoric, and music explicitly, and concluding that DH's impact extends beyond cultural heritage specifically to these named disciplinary areas [4]. The same study named the specific computational methods driving this impact: text mining, visualization, social network analysis, and computational sciences generally, alongside named digital technologies including text digitization, optical character recognition (OCR), and semantic web implementation [4]. The study further identified knowledge-organization tools, specifically linked open data and semantic web approaches, as a distinct topic cluster applied to enhance the searchability of cultural heritage and digital resources [4].

This disciplinary breadth is directly relevant to cultural studies specifically because it indicates that archival transformation through digital humanities methods is not confined to any single

humanities subfield. The explicit naming of African American studies and rhetoric alongside more traditionally digitized fields such as literature and history suggests that digital archival methods have diffused into areas of cultural studies concerned with historically under-archived or marginalized voices, a diffusion pattern with potentially significant implications for whose cultural records receive the metadata investment and preservation attention that this review's other sections document as central to sustainable digital access.

2.4 Linked Data and the Sampo Portal Case Studies

A study of archives, linked data, and the digital humanities documented a specific named implementation: the Sampo portals, alongside a number of other case studies, which the study characterized as clearly demonstrating that investment in Linked Data tools and services for the digital humanities benefits users in general and aids the development of cultural heritage applications more widely [5]. The study cited this finding across seven specific prior works (Blanke and Riechert 2020; de Boer et al. 2015; Hyvönen 2020a, 2020b; Hyvönen et al. 2016; Koho et al. 2021; Oldman et al. 2016; Tamper et al. 2018), providing a directly traceable evidence base for the Sampo portals' documented benefit [5]. The same study identified a specific technical challenge these implementations must address: making heterogeneous and distributed digital data available in accordance with the FAIR Guiding Principles, requiring that data be published as Findable, Accessible, Interoperable, and Re-usable, citing Wilkinson et al. (2016) as the specific source of this named standard [5].

The study noted a specific asymmetry in the field's development: whereas digital humanities scholarship demonstrates interest in and awareness of the value of Archival Linked Data, there has been little similar consideration of its value within archival scholarship itself, despite at least one documented instance in which inspiration for a project came directly from the digital humanities to the archive sector [5]. This asymmetry is analytically important because it suggests that the transformation of archival practice this paper documents has, in at least this specific technical domain, been driven substantially by digital humanities researchers working adjacent to archival institutions rather than by archival science as an independent discipline generating its own semantic-web methodology. The direction of this cross-disciplinary influence, from digital humanities toward archival practice rather than the reverse, is a specific, documented pattern rather than a general assumption about interdisciplinary collaboration.

2.5 The Cultural Digitization Scorecard: Cross-National Findings

Direct, named cross-national measurement of digitization progress comes from the Cultural Digitization Scorecard, discussed in research on digital history and the politics of digitization. The scorecard measured the "digital reproduction of artefacts or documents" specifically, and its definition of cultural digitization also encompassed cultural institutions' online presence, their web and mobile interaction with audiences, the electronic access they accord to their archives, and the digital educational initiatives they undertake with external communities [6]. The scorecard's central finding was explicit: cultural heritage digitization is extremely uneven across countries and regions, and even within countries, with Europe and North America ranking highest overall as expected [6].

Critically, the study reported specific, named exceptions to this expected pattern: China and Indonesia rank highly on archive digitization and access specifically, while digital access to

cultural heritage in Mexico, Peru, and Thailand is also assessed as comparatively good, despite these five countries not matching Europe and North America on aggregate measures [6]. This finding is important for cultural studies scholarship specifically because it complicates a simple center-periphery narrative in which digitization capacity tracks straightforwardly with overall economic development; instead, the scorecard's sub-measure data indicates that specific countries have developed comparatively strong digitization capacity in narrower domains, archive access in the East Asian and Southeast Asian cases, cultural heritage access more broadly in the Latin American cases, even without matching the aggregate infrastructure investment documented for Europe and North America.

2.6 The Historical Digitization Directory: A Quantified Record

A second directly quantified historical record comes from a now-discontinued digitization-projects directory documented in the same digital-history study. By the time it ceased development in 2006, the directory listed 293 collections specifically, and remains accessible only through the Internet Archive's Wayback Machine [6]. The directory's institutional category listed exactly 242 projects, a figure the study presented in tabular form [6]. This directory's cessation and its subsequent accessibility only via web-archive infrastructure is itself a documented instance of the digital-preservation fragility that Section 2.1's manuscript-preservation research addresses from a different, physical-deterioration angle: just as physical manuscripts face mold, fading ink, and termite damage as named threats to their long-term survival, born-digital archival infrastructure, including directories cataloguing other digital collections, faces its own named threat of simple discontinuation and dependence on third-party web-archiving services for continued accessibility.

This finding carries a specific methodological implication for future digital humanities archival research: any inventory or directory of digitized cultural heritage collections is itself a cultural artifact subject to the same preservation risks as the primary sources it catalogues, and the 293-collection, 242-project directory's survival only through Wayback Machine archiving demonstrates that this risk is not merely theoretical but has already materialized in at least one well-documented case within the reviewed literature.

2.7 Collaborative Data Behaviors and Data Scopes in Digital History

Research on collaborative data behaviors in digital humanities research teams identified specific prior taxonomic work directly relevant to archival transformation. The study cited Hoekstra and Koolen's concept of "data scopes," which demonstrates specific, named types of data transformation activities in history research: selection, modeling, normalization, classification, and linking [7]. The same study cited Ma and Xiao's work summarizing a comprehensive data workflow for digital history specifically, and Li et al.'s identification of characteristics distinguishing humanities scholars' data-seeking behaviors across different research approaches and seeking phases [7]. This five-category data-scopes taxonomy (selection, modeling, normalization, classification, linking) maps closely onto, and provides an independent scholarly confirmation of, the AERI workshop's own itemized six-to-seven-step digital-work sequence reported in Section I [1], [7].

The same collaborative-data-behaviors study additionally examined how humanities research teams, rather than individual scholars, coordinate around these data-transformation activities, citing Borgman's foundational case-study work establishing a preliminary understanding of how

humanities scholars work with data [7]. This team-level framing is a useful complement to the individual-skills framing the AERI workshop emphasized, since it suggests that the archival transformation this paper documents operates simultaneously at the level of individual competency (the “hard” and “soft” skills the AERI workshop named) and at the level of team coordination and workflow design (the data-scopes and data-workflow taxonomies this section documents).

2.8 Interpretive Consequences for Cultural Studies Research Design

Beyond the technical and infrastructural findings reviewed in Sections 2.1 through 2.7, the reviewed literature also documents specific consequences of archival digitization for how cultural studies research questions themselves are formulated. Where digitized text collections are available with standardized metadata, researchers can pose comparative, corpus-level questions, tracking the frequency or co-occurrence of specific terms, names, or themes across large collections spanning years or decades, that would have been practically infeasible using physical archives alone. The topic-modeling study’s identification of text mining and social network analysis as named computational methods driving DH’s disciplinary impact directly supports this interpretive shift [4], since both methods depend on having a sufficiently large, consistently formatted digital corpus to analyze.

At the same time, the Cultural Digitization Scorecard’s documentation of uneven cross-national digitization [6] implies that this corpus-level research capability is not equally available across all cultural contexts; a cultural studies researcher working on a topic where the relevant primary sources originate predominantly from a country or region with lower digitization scores faces a documented, measurable disadvantage in access to the large-scale digital corpora that computational cultural studies methods require, relative to a researcher working on a topic centered in Europe or North America.

2.9 Research Gap

While the AERI workshop (Section I) and the collaborative-data-behaviors study (Section 2.7) have independently converged on closely overlapping, named taxonomies of archival digital-transformation activities, and the Cultural Digitization Scorecard (Section 2.5) has established specific, quantified cross-national digitization rankings, no study reviewed here directly cross-references the named digitization activities (selection, digitization, metadata application) against the specific national contexts the Scorecard identifies as comparatively strong on narrow sub-measures (China, Indonesia, Mexico, Peru, Thailand), leaving open which specific archival-practice stages account for these countries’ comparatively strong performance despite lower aggregate rankings. Additionally, no study reviewed here directly measures whether the interpretive research-design consequences discussed in Section 2.8 vary systematically with the cross-national digitization disparities the Scorecard documents.

III. Methodology

This study adopts a qualitative, descriptive, and comparative research design synthesizing peer-reviewed digital humanities, archival science, and cultural heritage literature. Reviewed works were compared along four axes: type of evidence (workshop-reported taxonomy, citation-metadata quantification, named cross-national measurement instrument, or case-study implementation); named institutional or geographic context; specific quantified output (resource counts, project

counts, or ranking data) where reported; and whether the study addressed preservation, metadata, or access infrastructure specifically. Sources were selected on the basis of providing named, traceable findings, specific sample sizes, named case studies, or named measurement instruments, rather than general characterizations of digital humanities' impact on archival practice, consistent with this review's aim of reporting concrete rather than general findings throughout.

IV. Results and Discussion

4.1 Named Archival Digital-Work Activities Mapped to Source and Institutional Context

Table 1 consolidates the named archival digital-work activities documented across the reviewed literature, alongside the specific taxonomy or workshop from which each activity was drawn and the institutional context in which it was documented.

Table 1. Named Archival Digital-Work Activities and Sources

Activity	Source/Taxonomy	Institutional Context	Key Reference
Selection of documents suitable for transformation	AERI workshop taxonomy	UCLA (2009 workshop)	AERI report [1]
Digitization, reformatting/standardizing	AERI workshop taxonomy	UCLA	AERI report [1]
Application of metadata standards and description	AERI workshop taxonomy; data-scopes taxonomy	UCLA; digital history teams	AERI report [1]; Collaborative data behaviors [7]
Uploading to stable server; maintenance/enhancement	AERI workshop taxonomy	UCLA	AERI report [1]
Selection, modeling, normalization, classification, linking	Hoekstra & Koolen "data scopes"	Digital history research teams	Collaborative data behaviors [7]
Preservation against physical deterioration	Manuscript metadata study	Manuscript digitization projects	Archival metadata study [2]

4.2 Quantified Output and Measurement Findings

Table 2 reports the specific numerical findings documented across the reviewed studies, distinguishing research-output quantification from cross-national digitization measurement.

Table 2. Quantified Digital Humanities and Digitization Metrics

Metric	Value	Source/Instrument	Key Reference
DH visualization resources curated	~2,000	Pilaster citation-metadata collection (from 119 core papers, 3 venues)	Pilaster study [3]

Historical digitization directory collections (by 2006)	293	Discontinued directory (archived via Wayback Machine)	Digital history politics study [6]
Historical digitization directory institutional projects	242	Same directory, institutional category	Digital history politics study [6]
Cultural Digitization Scorecard top-ranked regions	Europe, North America	Cultural Digitization Scorecard	Digital history politics study [6]
Comparatively strong sub-measure performers	China, Indonesia (archive digitization/access); Mexico, Peru, Thailand (cultural heritage access)	Cultural Digitization Scorecard	Digital history politics study [6]
Named humanities disciplines impacted by DH	Literature, history, linguistics, arts, African American studies, rhetoric, music	Topic-modeling study	DH research agenda study [4]

4.3 Preservation Challenges Cross-Referenced Against Named Technical Responses

Table 3 shifts from output quantification to the specific preservation and access challenges the reviewed literature documents, cross-referenced against the named technical responses each source proposes.

Table 3. Preservation/Access Challenges and Named Technical Responses

Challenge	Documented In	Named Technical Response	Key Reference
Manuscript physical deterioration (mold, fading ink, termite damage)	Archival metadata study	Specialized preservation practices	Archival metadata study [2]
Metadata inconsistency across institutions/platforms	Archival metadata study	Metadata standards as “backbone” of sustainable collections	Archival metadata study [2]
Heterogeneous, distributed digital data access	Linked data/DH study	FAIR Principles (Findable, Accessible, Interoperable, Re-usable)	Archives/linked data study [5]

Low archival-science engagement with Archival Linked Data value	Linked data/DH study	Sampo portal case-study demonstration	Archives/linked data study [5]
Uneven cross-national digitization progress	Cultural Digitization Scorecard	Continued scorecard tracking; targeted sub-measure investment	Digital history politics study [6]
Directory/inventory discontinuation risk	Digital history politics study	Dependence on third-party web-archiving (Wayback Machine)	Digital history politics study [6]

The consolidated evidence across Tables 1 through 3 indicates that archival digital transformation is documented through convergent, independently derived taxonomies (Sections 2.1, 2.7) rather than a single authoritative framework, and that quantified cross-national progress (Section 2.5) reveals a more differentiated picture than an aggregate Europe/North-America-leads narrative alone would suggest, with specific countries demonstrating comparative strength on narrower, named sub-measures. The recurrence of preservation and discoverability as documented challenges across both the physical-manuscript literature (Section 2.1) and the born-digital-directory literature (Section 2.6) further suggests that preservation risk in archival digital humanities work is a structural property of the field generally, rather than a limitation specific to either analog or digital source materials in isolation.

V. Future Research Directions

Three specific priorities emerge from the reviewed literature. First, research should directly test whether the five-category data-scopes taxonomy (selection, modeling, normalization, classification, linking) [7] and the AERI workshop's six-to-seven-step sequence [1] can be merged into a single validated instrument for auditing archival digitization projects, since both taxonomies were derived independently but describe closely overlapping activities. Second, given the Cultural Digitization Scorecard's finding that China, Indonesia, Mexico, Peru, and Thailand outperform expectations on specific sub-measures [6], further research should identify which named activities from Table 1 these countries execute comparatively well, to isolate transferable practices that might inform digitization strategy in other lower-aggregate-ranking contexts. Third, the discontinued 293-collection digitization directory's dependence on Wayback Machine archiving [6] warrants direct follow-up assessing how many of the original 293 collections remain independently accessible today, providing an updated, quantified measure of digital-archival attrition over the nearly two decades since the directory's 2006 discontinuation. Fourth, the interpretive research-design consequences identified in Section 2.8 warrant direct empirical testing, comparing the corpus-level research questions cultural studies scholars are able to pose when working with high-digitization-score versus low-digitization-score source material, to quantify rather than merely infer the research-capability gap the Scorecard's uneven rankings suggest.

VI. Conclusion

This review has reported specific, named, and where possible quantified findings on how digital humanities methods have transformed archival practice within cultural studies: a documented six-to-seven-step archival workflow from the AERI and UCLA workshop, a five-category data-scopes

taxonomy from digital history research, a nearly-2,000-resource citation collection from DH visualization research, and specific cross-national digitization rankings, including named exceptions to the Europe and North America-leads pattern, from the Cultural Digitization Scorecard. These concrete findings indicate that archival transformation is neither uniform nor fully captured by any single measurement instrument, and that the interpretive consequences for cultural studies research design, specifically the capacity to pose corpus-level, computational research questions, are unevenly distributed across cultural and national contexts in ways that track the documented digitization disparities this review has reported. Future archival-science and digital-humanities research should prioritize integrating these independently developed, overlapping taxonomies into a unified, empirically validated framework, and should directly measure the research-capability consequences of the cross-national digitization gaps this review has documented.

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