

Byte the Hand That Feeds: Late-Stage Capitalism's Grip on Digital Preservation

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ABSTRACT: The pervasive influence of late-stage capitalism in the 21st century has permeated all aspects of digital preservation efforts as well as the broader context of cultural heritage. This paper uses social media preservation to examine the intersection of digital preservation with capitalism's prioritization of financial gain at the expense of all else, causing systemic harm to individuals and resulting in archival silences and challenges to preservation. The privatized landscape of cultural heritage pervades every aspect of digital record generation and preservation, introducing hurdles to object content and context, as well as to the logistics and mechanisms of social media object preservation. This discussion explores these challenges to the "who," "what," and "how" of digital preservation through the lens of social media objects and concludes by discussing digital preservation approaches existing outside of, or counter to, the capitalist mechanisms that dominate the modern digital age.

Keywords: digital preservation, social media archiving, capitalist power, late-stage capitalism, cultural heritage, collective memory



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Introduction

In the 21st century, the pervasive influence of late-stage capitalism presents significant challenges to various fields, including digital preservation. This paper examines how the profit-driven nature of capitalism impacts the preservation activities of digital media and how it affects the field of digital preservation within the broader context of cultural heritage institutions, such as libraries, archives, and museums. By exploring these challenges through the lens of preserving social media generated records, we can better understand the complex tension between economic systems and efforts to safeguard our digital heritage.

Capitalism prioritizes the accumulation of profit, a focus on financial gain that often comes at the expense of other important societal values and endeavors. In the context of digital preservation, this profit-centric approach can lead to effects such as the loss of culturally significant digital artifacts without an apparent monetary value, as well as resulting in short-term decision-making that can blatantly overlook the long-term needs of digital materials and digital cultural heritage. To fully grasp capitalism's impact on digital preservation, it is crucial to recognize and contextualize its historical roots in colonialism. Colonialism facilitated the global spread of capitalism, greedily establishing the societal structures and economic systems that continue to shape our world to this day.¹ The power structures, oppression, and centering of white Western Anglophonic perspectives that are inherent to colonialism continue to perpetuate the mechanisms of capitalism, while simultaneously minimizing recourse for exploited people and ideas.

This paper discusses the complex challenges that digital preservation faces in a capitalist-dominated society, examined in terms of the "who," "what," and "how" of digital preservation, as contextualized through examples of social media preservation. The first section, [The Devaluation of Cultural Heritage Labor](#), outlines the impacts on digital preservation practitioners through the capitalist devaluation of cultural heritage as a field. [Challenges to The Content and Context of Digital Materials](#) then discusses how the ongoing influence of these capitalist power dynamics perpetuates systems of colonialism, oppression, and inequality within the archival record, creating silences in the historical narrative by hindering the availability and selection of social media content preserved through digital preservation. The third section, [Logistical Challenges to Preservation through Capitalism](#), examines how the forceful incorporation of profit-seeking behavior and loss-reducing rationales logistically challenges digital preservation activities on social media records, building from individual objects to global hurdles. Lastly, [Byte Back](#) discusses initiatives that promise to progress towards more inclusive, equitable, and effective approaches to social media preservation as digital cultural heritage.

The Devaluation of Cultural Heritage Labor

The field of cultural heritage preservation, which is oriented around safeguarding our collective cultural memory and identity, plays a vital role in the mechanisms of society. However, this crucial work is consistently undervalued by mechanisms of capitalism due to the perceived lack of corporate and political appeal, as well as capitalism's denigration of "unproductive labor," or

¹ Hall, Martin. "Virtual Colonization." *Journal of Material Culture*, 1999, 17. <https://doi.org/10.1177/135918359900400103>.

labor and service that is purchased in the form of wages.² This devaluation has broad consequences for digital preservation, affecting not only the individuals working in the field but also the capabilities and sustainability of preservation efforts.

One of these consequences is minimizing human labor in digital preservation endeavors. In a 2023 study, Acker noted that users accessing preserved materials often prefer not to see the preservation processes involved, viewing the visibility of labor as detracting from the usability of the materials.³ In other words, the optics of preservationist labor can be a no-win scenario -- efforts are most appreciated if they are invisible, but if the efforts are invisible, then there's no one to appreciate them. This perception, or lack thereof, can negatively impact the feasibility of preservation programs by limiting funding for preservation labor and staffing.⁴

In this context, it is unsurprising that many institutions struggle to secure adequate funding for even minimal staffing, constraints which then, in turn, lead to a reliance on grant funding and contract jobs, which lack both job security and employee benefits and result in the perpetuation of the "gig economy" standard within the field.⁵ Consequently, those interested and capable of doing this labor are frequently forced to live and work without basic securities.^{6,7} This labor devaluation is exacerbated by heavy competition for job opportunities. Digital preservationists seeking employment may find themselves in the unenviable position of choosing between accepting a short-term contract with inadequate pay and benefits or declining the contract and risking open-ended unemployment. This predicament is particularly perverse when considering the growing educational and experience-based requirements for these positions, growth largely due to that same heavy competition, and have led to many cultural heritage job positions mandating applicants have advanced post-graduate degrees while concurrently offering salaries insufficient to offset student debt, ultimately contributing to deeper wealth inequality.

In short, digital preservation practitioners are seeing a highly successful corruption of the capitalist supply and demand model, which has effectively lowered the bottom line, ensuring cost-saving measures at the expense of ethics and long-term sustainability. The abundance of eager workers (supply) outweighs the number of available jobs (demand), resulting in the devaluation of labor through lower pay and worse benefits. This imbalance, due to the premise of rarity (where the more available a resource is, the less valuable it is),⁸ also leads to decreased prestige for the work and concurrent ever-increasing requirements for job applicants.

Institutions, constrained by limited budgets and limited by the scope of grant funding

² Marx, Karl. *Theories of Surplus Value; Selections*. International Publishers, 1952.

³ Acker, Amelia. "Accessing Software: Emulation in Information Institutions." SSRN Scholarly Paper. Rochester, NY, April 6, 2023. <https://papers.ssrn.com/abstract=4450195>.

⁴ Wallace, David. *SNAFU: Archives Are Everywhere and Vulnerable*, 2023.

⁵ Niu, Jinfang. "An Online Marketplace for Archival Services." *Global Knowledge, Memory and Communication* 72, no. 6/7 (January 1, 2022): 685–99. <https://doi.org/10.1108/GKMC-09-2021-0162>.

⁶ Bredbenner, Stephanie, Alison Fulmer, Rose Oliveira-Abbey, and Meghan R. Rinn. "'The Career Does Not Love You Back': Impacts of Contingent Employment on Workers, Cultural Heritage Institutions, and the Archival Profession." *The American Archivist* 87, no. 1 (July 5, 2024): 131–54. <https://doi.org/10.17723/2327-9702-87.1.131>.

⁷ Rodriguez, Sandy, Ruth Tillman, Amy Wickner, Stacie Williams, and Emily Drabinski. "Collective Responsibility," 2019. https://mospace.umsystem.edu/xmlui/bitstream/handle/10355/69708/RodriguezSandy_2019_paper.pdf.

⁸ Hutcheson, Francis. *A System of Moral Philosophy*. A&C Black, 2006.

opportunities, try to maximize their funds by investing in equipment rather than in ethical staffing practices.^{9,10} While this may initially seem like an intelligent and strategic choice -- equipment will not ever leave for another job opportunity -- that strategy often overlooks the need for skilled personnel to operate and maintain the technology and neglects to allocate funds accordingly. Digital preservation requires ongoing investment in equipment, people, and training, making initiatives unsustainable when only part of the equation is funded.¹¹ Additionally, the rapid pace of technological advancement necessitates continuous learning and adaptation, which is made especially difficult by the limited interest in funding the required training -- an ultimately shortsighted funding approach that is not unique to digital preservation.

The devaluation of cultural heritage also impacts the allocation of physical resources within cultural heritage institutions, such as museums, libraries, and archives. Higher-valued fields are given priority, resulting in preservationists struggling to secure equipment and office or workstation space, ultimately hindering the efficiency and effectiveness of preservation efforts and reducing job satisfaction.¹² When cultural heritage preservation activities *do* garner positive attention and the resulting funding, it's often due to initiatives that align with corporate or political interests.¹³ For example, corporate digital media are frequently designated as "assets" hallmarked for future monetization through marketing efforts and social media campaigns used to fortify capitalism.¹⁴ Yet even though these digital assets and their 'digital asset managers' benefit from additional support, stewardship decisions based on assets' monetization potential will frequently prioritize short-term financial considerations instead of long-term preservation, ultimately resulting in similar challenges from a different context.¹⁵

The devaluation of labor, inadequate staff funding, and shortsighted planning are all the result of a capitalist dynamic, with these funding practices eventually causing precarious instability to the foundational workings of cultural heritage institutions.¹⁶

Challenges to the Content and Context of Digital Materials

The appraisal and selection of cultural materials in the 21st century is a substantial undertaking sitting at the intersection of historical value, economic realities, technological capabilities, and

⁹ Cifor, Marika. "Affecting Relations: Introducing Affect Theory to Archival Discourse." *Archival Science* 16, no. 1 (March 2016): 7–31. <https://doi.org/10.1007/s10502-015-9261-5>.

¹⁰ Howard, Kristen C. "Digitization and Exploitation: Acknowledging and Addressing the Use of Exploitative Prison Labor by Libraries and Archives." *Library Quarterly* 93, no. 3 (July 2023): 241–55. <https://doi.org/10.1086/725070>.

¹¹ Wallace, David. *SNAFU: Archives Are Everywhere and Vulnerable*, 2023

¹² Corrado, Edward M. "Digital Preservation Is Not Just a Technology Problem." *Technical Services Quarterly* 39, no. 2 (April 3, 2022): 143–51. <https://doi.org/10.1080/07317131.2022.2045432>

¹³ Burns, Jasmine E. "Information as Capital: The Commodification of Archives and Library Labor." *Visual Resources Association Bulletin* 45, no. 1 (2018). <https://online.vraweb.org/index.php/vrab/article/view/30>.

¹⁴ Cameron, Fiona R. *The Future of Digital Data, Heritage and Curation: In a More-than-Human World*. 1st ed. Routledge, 2021. <https://doi.org/10.4324/9781003149606>.

¹⁵ Tansey, Eira. "Archives without Archivists." *Reconstruction: Studies in Contemporary Culture* 16, no. 1 (March 22, 2016).

<https://go.gale.com/ps/i.do?p=AONE&sw=w&issn=15474348&v=2.1&it=r&id=GALE%7CA484096660&sid=googleScholar&linkaccess=abs>.

¹⁶ Schmidt, Nora. "The Privilege to Select. Global Research System, European Academic Library Collections, and Decolonisation," September 2, 2020. <https://doi.org/10.5281/ZENODO.4011296>.

sociopolitical power structures.¹⁷

The emergence of social media and digital platforms has democratized media production and distribution¹⁸ by enabling anyone with internet access, a smartphone, and a vision to create and share content globally. This substantially contrasts with the previous traditional media dissemination mechanisms such as television, radio, newspapers, and books, resulting in a substantive volumetric increase in the number of digital objects and platforms.¹⁹ The democratization has been a boon in placing narrative power in the hands of diverse voices and communities whose perspectives have been historically oppressed,²⁰ providing opportunities to work against the colonialist origins and narratives within historical and cultural records,²¹ amplifying marginalized voices and enabling greater inclusion and representation,²² while most importantly enabling people to have agency over their own voices.²³ This ultimately reduces the gaps or silences in the historical narratives caused by differential power and oppression.²⁴

However, it is undeniable that capitalism nonetheless continues to drive the digital age, and digital cultural heritage is subject to the same damaging capitalist influences that remain inextricable from our culture and society. Financial interests directly determine what digital content or information is eligible for creation, distribution, and access, consequently shaping digital content and digital cultural narratives in their image -- reflective of their interests and biases.²⁵ Capitalism pervades every aspect of historical and cultural heritage creation and management, from object creation through appraisal, preservation, use, and access, as a force that intertwines an imbalance of power into historical narratives. This imbalance is traced through parallel silences introduced throughout the resulting narratives of historical and cultural heritage: silences created at the creation of facts and objects; the appraisal and assembly of objects into archives; the making of narratives from sources and facts; and the making of retrospective significance and history from these narratives and sources.²⁶ The prescribed relationship between digital content and the representative interests of wealth, power, and influence, therefore, underscores challenges throughout the preservation landscape.

¹⁷ Summers, Ed. "Appraisal Talk in Web Archives." *Archivaria* 89, no. 1 (2020): 70–102.

¹⁸ Rosenzweig, Roy. "Scarcity or Abundance? Preserving the Past in a Digital Era." *The American Historical Review* 108, no. 3 (June 1, 2003): 735–62. <https://doi.org/10.1086/ahr/108.3.735>.

¹⁹ Ginsberg, Wendy. "Retaining and Preserving Federal Records in a Digital Environment: Background and Issues for Congress," July 26, 2023. <https://crsreports.congress.gov/product/pdf/R/R43165/4>.

²⁰ Cifor, Marika. "Affecting Relations: Introducing Affect Theory to Archival Discourse." *Archival Science* 16, no. 1 (March 2016): 7–31. <https://doi.org/10.1007/s10502-015-9261-5>.

²¹ Sangwand, T-Kay. "Preservation Is Political: Enacting Contributive Justice and Decolonizing Transnational Archival Collaborations." *KULA: Knowledge Creation, Dissemination, and Preservation Studies* 2 (November 29, 2018): 10. <https://doi.org/10.5334/kula.36>.

²² Farry, Colleen. "Re-Membering Blackness: Digital Archives, Collective Memory, and a University's Black History." *Portal: Libraries and the Academy* 24, no. 3 (July 2024): 435–55. <https://doi.org/10.1353/pla.2024.a931766>.

²³ Hegarty, Kieran. "Representing Biases, Inequalities and Silences in National Web Archives: Social, Material and Technical Dimensions." *Archives & Manuscripts* 50, no. 1 (September 2, 2022): 31–45. <https://doi.org/10.37683/asa.v50.10209>.

²⁴ Trouillot, Michel-Rolph. *Silencing the Past: Power and the Production of History*. Boston: Beacon Press, 1995.

²⁵ Pessach, Guy. "[Networked] Memory Institutions: Social Remembering, Privatization and Its Discontents." *SSRN Electronic Journal*, 2008. <https://doi.org/10.2139/ssrn.1085267>.

²⁶ Trouillot, Michel-Rolph. *Silencing the Past: Power and the Production of History*. Boston: Beacon Press, 1995.

The Hegemony and Archival Silence

The sheer volume of material resulting from the democratization of media and the ubiquity of digital technology can be a significant challenge for preservationists. It is not feasible to indiscriminately preserve every digital object ever created, and not every digital object should receive committed and enduring preservation efforts.^{27,28} There is little cultural, historical, or even financial sense in preserving every social media record, considering that it is also a choice to continuously devote limited financial, physical, and human resources from object acquisition until the end of time.²⁹ Determining what is worthy of collection, and by extension, which cultural heritage objects are preserved, necessitates careful selection.³⁰

Collections inherently reflect broader colonial societal power structures, narratives, and biases in terms of both priorities and media availability.³¹ Cultural preservation is not immune to the adage, "History is written by the victors," resulting in many archival collections that disproportionately represent the voices of those in positions of economic and social power -- typically wealthy, white, and English-speaking individuals and institutions.³² The inclusion and perpetuation of bigoted narratives under the guise of historical record-keeping is a matter of colonialism and is not new nor unique to 21st-century capitalism.³³ However, we must reckon with the understanding that the archives with which we are familiar are not neutral repositories of information but are instead powerful shapers of collective memory and identity, as noted by archival scholars Joan M. Schwartz and Terry Cook: "[...] Archives are established by the powerful to protect or enhance their position in society. Through archives, the past is controlled. Certain stories are privileged, and others marginalized." However, the narrative control of the past has an enormous influence over society's present self-identity and self-perception, influencing potential futures.³⁴ In other words, archives have never been neutral and are not neutral now.

In the digital age, this power dynamic has taken on new dimensions. AI systems, trained on existing data with their creators' existing biases, risk hard-coding and amplifying historical biases

²⁷ Cook, Terry. "'We Are What We Keep; We Keep What We Are': Archival Appraisal Past, Present and Future." *Journal of the Society of Archivists* 32, no. 2 (October 2011): 173–89. <https://doi.org/10.1080/00379816.2011.619688>.

²⁸ Lassere, Monique, and Jess M. Whyte. "Balancing Care and Authenticity in Digital Collections: A Radical Empathy Approach To Working With Disk Images." *Journal of Critical Library and Information Studies* 3, no. 2 (2021). <https://doi.org/10.24242/jclis.v3i2.125>.

²⁹ Rinehart, Amanda K., Patrice-Andre Prud'homme, and Andrew R. Huot. "Overwhelmed to Action: Digital Preservation Challenges at the Under-Re," January 30, 2014. https://ir.library.illinoisstate.edu/fpml/51/?utm_source=ir.library.illinoisstate.edu%2Ffpml%2F51.

³⁰ Tallman, Nathan, and Lauren Work. "Approaching Appraisal: Framing Criteria for Selecting Digital Content for Preservation," September 21, 2018. <https://doi.org/10.17605/OSF.IO/8Y6DC>.

³¹ Nathan, Lisa P., Elizabeth Shaffer, and Maggie Castor. "Stewarding Collections of Trauma: Plurality, Responsibility, and Questions of Action." *Archivaria*, November 19, 2015, 89–118.

³² Flinn, Andrew. "Archival Activism: Independent and Community-Led Archives, Radical Public History and the Heritage Professions." *InterActions: UCLA Journal of Education and Information Studies* 7, no. 2 (May 31, 2011). <https://doi.org/10.5070/D472000699>.

³³ Linebaugh, Riley, and James Lowry. "The Archival Colour Line: Race, Records and Post-Colonial Custody." *Archives and Records* 42, no. 3 (September 2, 2021): 284–303. <https://doi.org/10.1080/23257962.2021.1940898>.

³⁴ Schwartz, Joan M., and Terry Cook. "Archives, Records, and Power: The Making of Modern Memory." *Archival Science* 2, no. 1 (March 1, 2002): 1–19. <https://doi.org/10.1007/BF02435628>.

and bigotry, disseminating problematic and harmful views through social media discourse portrayed as neutrality.³⁵ The individuals and corporations responsible for developing these technologies are not neutral actors and often have their own capitalist financial and political motives driving the creation and maintenance of this technology, further skewing the preservation and interpretation of digital cultural materials on a large and social scale.

Corporate and Political Silencing

Despite the promise of democratized media in the age of globalization, media platforms are controlled by corporations, resulting in systems easily manipulated by wealth and power.³⁶ These entities determine what cultural content is preserved through their ability to control which records are created in the first place.

The manipulation of social media can be seen through the efforts to stop private jet flight tracking bot accounts on Twitter (now X), which used legal, free, and publicly available information to track the private jets of high-profile individuals, such as Elon Musk and Taylor Swift. Unhappy with the existence of these private jet tracking bots and the critical discourse they caused, Musk tried to get his shut down -- an endeavor which eventually led to him purchasing Twitter.³⁷ Musk's subsequent renaming of the platform to "X" and unblocking users effectually changed the social and political demographic of the platform almost overnight, causing an abrupt change in represented perspectives across the network.³⁸ In addition to Musk's shaping of available records through the corporate control of social media platforms, the intersection of media dissemination and capitalist measures also enables media control by shaping the very systems upon which media is dependent -- the law. Taylor Swift, like Musk, sought to prevent undesirable social media discourse caused by bots tracking her private jet.³⁹ Where Musk solved this problem by purchasing Twitter, Swift instead chose to alter the legal basis of the FAA, changing the federal government's aviation regulations to prevent her jet from being publicly tracked.⁴⁰ The ability of those in power to prevent undesirable social media discourse ultimately hinders which objects are created, which can be preserved, forming an archival record shaped to benefit the wealthy and powerful.

The continued application of capitalism to social media networks drives consequential changes in the voices represented across social media platforms, artificially shifting the content and

³⁵ Jillson, Elisa. "Aiming for Truth, Fairness, and Equity in Your Company's Use of AI." *Federal Trade Commission* (blog), April 19, 2021. <https://www.ftc.gov/business-guidance/blog/2021/04/aiming-truth-fairness-equity-your-companys-use-ai>.

³⁶ Pessach, Guy. "[Networked] Memory Institutions: Social Remembering, Privatization and Its Discontents." *SSRN Electronic Journal*, 2008. <https://doi.org/10.2139/ssrn.1085267>.

³⁷ Wagner, Kurt. *Battle for the Bird*, 2024. <https://www.simonandschuster.com/books/Battle-for-the-Bird/Kurt-Wagner/9781668017357>.

³⁸ Pettis, Ben Tadayoshi. "Who Watches the Birdwatchers? Creating a Rogue Archive of Twitter's Ongoing Collapse." *AoIR Selected Papers of Internet Research*, December 31, 2023. <https://doi.org/10.5210/spir.v2023i0.13479>.

³⁹ O'Malley, Isabella. "Why Taylor Swift's Globe-Trotting in Private Jets Is Getting Scrutinized." *AP News*, February 2, 2024. <https://apnews.com/article/taylor-swift-climate-jet-carbon-emissions-kelce-chiefs-02ac425d24281bd26d73bdf4590bc82>.

⁴⁰ Washington Times Staff. "Congress Makes It Virtually Impossible to Track Celebrities' Private Jets." *The Washington Times*. Accessed June 15, 2024. <https://www.washingtontimes.com/news/2024/may/28/congress-makes-it-virtually-impossible-to-track-ce/>.

perspectives represented in digital discourse and ultimately creating silences within archival records of perspectives that are lost or omitted because of these changes.⁴¹ Meta blocked all news content in Canada to avoid paying fees to news publishers,⁴² creating a gap in social media records discussing current events, while shifts in bias and media content escalated further in Myanmar, where from 2013 - 2017, Facebook's lack of content moderation directly fueled genocide against the Rohingya^{43,44} -- an archival silence caused by profound loss, yet a mode of silence that is reintroduced with Meta's decision to end content moderation and fact-checking in January 2025.⁴⁵

Similarly, the documentation of historically significant events, particularly in times of conflict, is subject to power dynamics relating to political influence. Media blackouts imposed by governments during periods of conflict, such as China's control over media coverage of Uyghur populations⁴⁶ and Israel's disruption of Palestinian communication networks,⁴⁷ can severely limit the creation and dissemination of materials through social media as well as through other mechanisms. The resulting lack of records can create false impressions or biases in the historical record due to omission. The silences created through political regime change and control are mirrored by librarians and archivists responding to those silences, and ultimately profoundly affect the historical and cultural narrative and archival record.

Content "Value"

These silences are continued in capitalist impacts to cultural heritage institutions through the appraisal and selection of materials, a complex process that extends far beyond monetary considerations.^{48,49} While cultural institutions strive to preserve our collective heritage based on non-monetary value systems, capitalist emphasis on financial worth is pervasive and inescapable, resulting in the commodification of archival materials.⁵⁰ Due to capitalism's predominant

⁴¹ Hegarty, Kieran. "Representing Biases, Inequalities and Silences in National Web Archives: Social, Material and Technical Dimensions." *Archives & Manuscripts* 50, no. 1 (September 2, 2022): 31–45. <https://doi.org/10.37683/asa.v50.10209>.

⁴² AP News. "Facebook Owner Meta Carries out Threat to Block News in Canada. Google Plans to Do the Same," August 3, 2023. <https://apnews.com/article/facebook-meta-canada-news-google-e23fae879596af2c5ac8075fa92f3689>.

⁴³ Alex Warofka. "An Independent Assessment of the Human Rights Impact of Facebook in Myanmar." *Meta* (blog), November 6, 2018. <https://about.fb.com/news/2018/11/myanmar-hria/>.

⁴⁴ Hamilton, Rebecca J. "Platform-Enabled Crimes." SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, November 12, 2021. <https://doi.org/10.2139/ssrn.3905351>.

⁴⁵ Meta. "More Speech and Fewer Mistakes," January 7, 2025. <https://about.fb.com/news/2025/01/meta-more-speech-fewer-mistakes/>.

⁴⁶ BBC. "Who Are the Uyghurs and Why Is China Being Accused of Genocide?" *BBC News*, April 24, 2013, sec. China. <https://www.bbc.com/news/world-asia-china-22278037>.

⁴⁷ El Chamaa, Mohamad, and Júlia Ledur. "Why Gaza Keeps Losing Communications." *Washington Post*, January 16, 2024. <https://www.washingtonpost.com/world/2024/01/16/gaza-cellphone-communications-blackout/>.

⁴⁸ Cook, Terry. "'We Are What We Keep; We Keep What We Are': Archival Appraisal Past, Present and Future." *Journal of the Society of Archivists* 32, no. 2 (October 2011): 173–89. <https://doi.org/10.1080/00379816.2011.619688>.

⁴⁹ Samuels, Helen. "Who Controls the Past." *The American Archivist* 49, no. 2 (April 1, 1986): 109–24. <https://doi.org/10.17723/aarc.49.2.t76m2130txw40746>.

⁵⁰ Tansey, Eira. "Archives without Archivists." *Reconstruction: Studies in Contemporary Culture* 16, no. 1 (March 22, 2016). <https://go.gale.com/ps/i.do?p=AONE&sw=w&issn=15474348&v=2.1&it=r&id=GALE%7CA484096660&sid=goo>

influence, the appraisal of cultural objects is inextricably linked to monetary value, and it can be challenging to separate the intrinsic cultural value of objects from their appraised monetary worth.⁵¹ By extension, it is increasingly difficult to select cultural materials while fully contextualizing the impact of capitalist forces on each object and each decision.

At its core, the preservation of cultural materials is driven by a desire to maintain our collective history and heritage. Cultural institutions are not established for financial gain and generally do not set collection development goals based on an object's perceived monetary value. Instead, institutions strive to evaluate materials based on their historical and contextual significance and relevance to the institution. However, the reality of operating within the limitations imposed by our society's capitalist framework is that financial considerations inevitably seep into material creation, selection, and appraisal processes.⁵² With limited resources available for preservation efforts, institutions are forced to make difficult decisions, often applying a kind of "money math" to objects whose values are fundamentally unrelated to money and resulting in corresponding archival silences. The need to justify budgets and allocate scarce resources effectively causes monetary value to serve as a requisite factor in the selection and development equations. It can ultimately be the determining factor for digital collection development.⁵³

Logistical Challenges to Preservation through Capitalism

Capitalist forces monetize and commercialize digital cultural heritage production and mediums of expression through social media platforms. Still, the ongoing financial motivations of these for-profit entities affect and complicate these digital objects far past the material creation. Ultimately, the whims of these corporations determine the continued availability, accessibility, and nature of their social media objects, introducing logistical challenges for social media preservation.

The commercialization of cultural heritage and expression has caused a paradigm shift in how we create, consume, and preserve media, bringing about positive societal change but introducing complex challenges for preservationists and cultural institutions. This corporate commodification of digital media is a continual influence throughout social media platforms, both to platform interfaces and digital objects,⁵⁴ raising challenges to preservation on per-object and per-format scales, as well as logistically hindering all objects through challenges to the mechanisms and activities that form digital preservation practices.

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⁵¹ Walden, David A. "Stretching the Dollar: Monetary Appraisal of Manuscripts." *Archivaria*, January 1, 1980, 101–13.

⁵² Tansey, Eira. "Institutional Silences and the Digital Dark Age." *The Schedule* (blog), May 23, 2016. <https://saarmrt.wordpress.com/2016/05/23/institutional-silences-and-the-digital-dark-age/>.

⁵³ Hegarty, Kieran. "Representing Biases, Inequalities and Silences in National Web Archives: Social, Material and Technical Dimensions." *Archives & Manuscripts* 50, no. 1 (September 2, 2022): 31–45. <https://doi.org/10.37683/asa.v50.10209>.

⁵⁴ Rosenzweig, Roy. "Scarcity or Abundance? Preserving the Past in a Digital Era." *The American Historical Review* 108, no. 3 (June 1, 2003): 735–62. <https://doi.org/10.1086/ahr/108.3.735>.

Individual Objects: Ephemerality, Mutability, and Intellectual Property Rights

In the digital age, the production and preservation of each cultural heritage object has become increasingly complex due to the pervasive influence of capitalist forces, resulting in very short lifespans for digital objects⁵⁵ and causing additional implications for object usability and access. Part of this complexity is in the fundamental vulnerability and impermanence of digital objects, a medium that allows the object's content and structure to be modified at the drop of a hat, with intellectual property rights varying correspondingly.

Social media platforms facilitate the creation and distribution of digital cultural heritage, acting as both the medium and mechanism for varying types of digital objects. Yet these platforms are concurrently corporations; whether they are social media giants, short-form video platforms, or complex media distribution channels, all digital media services operate primarily according to their own financial interests, which can conflict with the interests of content creators and challenge preservation efforts.⁵⁶

One such challenge is evident in the sweeping movement towards streaming and digital distribution of commercially owned audiovisual media, which fundamentally altered the concept of ownership and logistics of access. The digital distribution of media operates through licensing agreements, which permit access to corporately owned copies of digital media files for the duration of the agreement, allowing the licensing company to change or revoke consumer access at any time.⁵⁷ Licensing presents significant challenges for the digital preservation of complex digital objects that include commercially owned component media, such as music in short-form video platforms like TikTok.

The preservation challenges derived from licensing and corporate interests are illustrated through a recent licensing dispute between TikTok and Universal Music Group (UMG). When UMG pulled its music catalog from TikTok due to financial licensing disagreements, millions of TikToks were affected. The nature of the social media format does not generally allow creators to edit audio components, so the removal of UMG-licensed audio resulted in countless TikTok videos suddenly turning silent.⁵⁸ As music is foundational to many TikToks and an essential aspect when considering TikToks' societal context and influence, the lack of audio instantly removed much of what defines and is relevant about the object -- the omission of music fundamentally alters both the nature and the key characteristics of the social media object.

Many influencers' and celebrities' culturally significant work was rendered unwatchable.⁵⁹ This

⁵⁵ SalahEldeen, Hany M., and Michael L. Nelson. "Losing My Revolution: How Many Resources Shared on Social Media Have Been Lost?" arXiv, September 13, 2012. <http://arxiv.org/abs/1209.3026>.

⁵⁶ Harvey, D. R., ed. *Preserving Digital Materials*. München: K.G. Saur, 2010.

⁵⁷ Muir, Adrienne. "Preservation, Access and Intellectual Property Rights Challenges for Libraries in the Digital Environment - CORE," 2005. <https://core.ac.uk/outputs/288388178/>.

⁵⁸ *Reuters*. "TikTok Begins Removing Universal Music Publishing Content after Deal Stalemate." February 27, 2024, sec. Technology. <https://www.reuters.com/technology/tiktok-begins-removing-universal-music-publishing-content-after-deal-stalemate-2024-02-27/>.

⁵⁹ Viramontes, Davic. "Who Is Oscars Red Carpet Host Amelia Dimoldenberg?" Los Angeles Times, March 10, 2024. <https://www.latimes.com/entertainment-arts/awards/story/2024-03-10/oscars-2024-amelia-dimoldenberg-red->

ongoing dispute had a substantial impact across the platform and resulted in TikTok enabling creators who had used UMG-licensed music to change those specific TikToks' sound by replacing the silence with non-UMG music of their choice. Yet several months after the removal of UMG's music, TikTok and UMG came to a new agreement, reinstating the previous UMG music catalog across TikTok videos as suddenly as it had been removed.⁶⁰ However, TikToks where the creators opted to replace the dispute-related silence with non-UMG music, permanently retained the replacement non-UMG music.⁶¹

This dispute has resulted in a situation where millions of social media objects, previously defined as uneditable, have now been edited multiple times, adding temporal considerations of varying complexities on a per-object basis. If a TikTok creator were to have selected a replacement non-UMG track, it would result in three different versions of the digital object, each connected to a specific period of time: before the dispute (with UMG music), at the beginning of the dispute (with no music), and at the end of the dispute (with non-UMG replacement music). This forced redefining of digital media reflects the tension between these two corporations' profit-seeking motivations and the creator's limited control over the original object itself. The resulting situation exemplifies significant logistical preservation complexities that are the outcome of corporate motivation and control and result in impacts to digital materials that could not have been predicted, with unexpected changes over time, as well as the preservation of works that are missing their vital components (in this case due to intellectual property rights).

The granular scope of intellectual property rights can cause rights variations from each version of each digital object (in this case, UMG, silent, non-UMG), with licensed components further complicating the acquisition and preservation of social media objects. In the United States, where many of the corporations and platforms are headquartered, the compelling force behind intellectual property laws is the potential for monetary gain.⁶² Although there are exceptions that enable cultural institutions to conduct digital preservation activities, a copy of the digital object must first be "lawfully obtained." Lawful acquisition is a grey area for social media objects that cannot be purchased or licensed for preservation.⁶³ Ultimately, this introduces challenges of object impermanence through issues of acquisition,⁶⁴ as well as access and reuse, for each version of each object on an individual basis.

The impermanence of objects, as well as the ease and speed with which digital content can be altered, challenges preservation efforts in a logistical sense by greatly reducing the time available

[carpet-host](#).

⁶⁰ Murtagh-Hopkins, James. "Universal Music Group and TikTok Announce New Licensing Agreement." UMG, May 2, 2024. <https://www.universalmusic.com/universal-music-group-and-tiktok-announce-new-licensing-agreement/>.

⁶¹ Boisvert, Lauren. "Will Muted TikTok Videos Be Restored Now That Universal Music Group Has Reached a Licensing Agreement?" American Songwriter, May 2, 2024. <https://americansongwriter.com/will-muted-tiktok-videos-be-restored-now-that-universal-music-group-has-reached-a-licensing-agreement/>.

⁶² "Library of Congress. "Overview of Congress's Power Over Intellectual Property | Constitution Annotated | Congress.Gov | Library of Congress." Accessed July 30, 2024. https://constitution.congress.gov/browse/essay/artI-S8-C8-1/ALDE_00013060/.

⁶³ Hirtle, Peter. "Digital Preservation and Copyright by Peter Hirtle." Stanford Copyright and Fair Use Center, November 10, 2003. https://fairuse.stanford.edu/2003/11/10/digital_preservation_and_copyright/.

⁶⁴ Joint, Nicholas. "Digital Information and the 'Privatisation of Knowledge.'" *Library Review* 56, no. 8 (January 1, 2007): 659–65. <https://doi.org/10.1108/00242530710817983>.

to capture a preservation copy of any version of any digital object. Altogether, these challenges combine to form additional vulnerabilities for the cultural records' context, usability, and access, where corporate interests and optics can drive the change and erasure of content, making it challenging to acquire, contextualize, and define significant elements of digital objects over time.

Social Media Platforms and Formats: Expansive Scope of Objects and Community Inextricability

The intersection of corporate control mechanisms and the commercialization of digital media objects results in challenges to digital preservation activities, as is evidenced when considering the case of Tumblr, a social microblogging platform where the communities, and therefore the materials the communities produce, are driven by the social mechanisms of the platform interface. While the content on Tumblr starts as a simple upload and post, other users' engagement and interaction with the content is a large component of the object's creation process. Other users' contributions add a contextual and temporal dimension to the object so that, for example, a simple photo can become a meme, a story, or an integral part of community culture. In other words, the temporal and social interactions of the platform interface are integral components to the content and the essence of the cultural object, while the original upload is only the foundation of the digital object, not the complete object itself.⁶⁵

The vulnerability of community access becomes a challenge to the constitution of the social media objects. In 2018, after more than a decade of broad content policies, Tumblr announced that it had changed its "Community Guidelines" to prohibit pornographic material⁶⁶ and that all previously uploaded material deemed a violation of the new content policy would either become inaccessible or removed entirely.⁶⁷ Tumblr gave users two weeks of notice.

The many years of Tumblr's previous broadly permissive content policy had created large and vibrant communities centered around sexual topics, with thousands of users who had uploaded or engaged with content that was retroactively deemed violatory. When the rules changed, these users had no recourse.⁶⁸ Some may still have access to the original work from having uploaded it years before, but the community's evolution of the object through the platform interface has redefined it, rendering it inextricable from the platform community itself.

Although the famous saying defines pornography as "I know it when I see it," the reality and nuance of language and culture necessitate that our opinions are heterogeneous.⁶⁹ The expectation of cultural conformity is reflective of colonialist processes, allowing the re-defining of "adult content" (which warrants immediate removal) to be determined by the financial

⁶⁵ Milligan, Ian, Nick Ruest, and Jimmy Lin. "Content Selection and Curation for Web Archiving: The Gatekeepers vs. the Masses." Accessed November 4, 2024. <https://ieeexplore-ieee-org.libezp.lib.lsu.edu/document/7559571>.

⁶⁶ staff. "A Better, More Positive Tumblr." Tumblr. *Tumblr* (blog), December 3, 2018. <https://staff.tumblr.com/post/180758987165/a-better-more-positive-tumblr>.

⁶⁷ support. "Updates to Tumblr's Community Guidelines." Tumblr. *Tumblr* (blog), December 2018. <https://support.tumblr.com/post/180758979032/updates-to-tumblrs-community-guidelines>.

⁶⁸ Baumhofer, Emma, and Bernard F. Reilly Jr. "Preserving Open Source Digital Evidence," 2022.

⁶⁹ Gewirtz, Paul. "On 'I Know It When I See It.'" *The Yale Law Journal* 105, no. 4 (January 1996): 1023. <https://doi.org/10.2307/797245>.

interests of powerful stakeholders.⁷⁰ This resulted in a content policy that disproportionately affects queer content and undermined vibrant communities of historically marginalized and chronically over-sexualized people relying on the safety and support of these communities,⁷¹ creating an archival silence around an already vulnerable group.

This example highlights and contextualizes several critical issues in the digital preservation of social media on the platform level. First, it demonstrates how quickly and drastically platform policies can change, resulting in the loss of user-generated content and community interactions spanning more than a decade, materials that are reliant upon the platform interface's mechanisms and cannot function the same way without the platform.⁷² Second, it underscores the challenge of categorizing and identifying the significant elements that define digital objects in the context of social platforms and the impact these corporate decisions have on archival silences.

These challenges are not unique to Tumblr; all corporations are subject to their stakeholders' whims and capitalist volatility. When these corporations control the flow of media on a platform-wide basis, this categorically leads to the format-wide instability of that platform,⁷³ where technology and information are misused to accrete power and profit in a system former US President Biden recently described as "the tech-industrial complex".⁷⁴

Biden's characterization reflects the political tension behind a 2024 Congressional law written to nationally prohibit the "distribution, maintenance, or updating of" TikTok⁷⁵ due to concerns that the Chinese-controlled platform would manipulate content flow to U.S. users in order to further the Chinese government's geopolitical interests.⁷⁶ This ban was structured to effect an intentional and instantaneous loss of access to the heritage and communities of 170 million monthly users, as well as to the context through which the content is dependent and which defines the nature of the object.⁷⁷ TikTok's existence as both content and content interface impedes the acquisition of the complete digital object (due to the same interactive components discussed previously), as well as access mechanisms. The threat of record loss caused by the ban catalyzed a movement of

⁷⁰ Liao, Shannon. "Tumblr Will Ban All Adult Content on December 17th." The Verge, December 3, 2018. <https://www.theverge.com/2018/12/3/18123752/tumblr-adult-content-porn-ban-date-explicit-changes-why-safe-mode>.

⁷¹ Reynolds, Daniel. "Tumblr's Ban on Adult Content Alarms LGBTQ Twitter." Advocate, December 3, 2018. <https://www.advocate.com/business/2018/12/03/tumblrs-ban-adult-content-alarms-lgbtq-twitter>.

⁷² Kozłowska, Hanna. "Tumblr Is Banning Porn and Other Adult Content." Quartz, December 3, 2018. <https://qz.com/1482821/tumblr-is-banning-porn-and-other-adult-content>.

⁷³ "The Global 'Bit List' of Endangered Digital Species - Digital Preservation Coalition." Accessed January 16, 2025. <https://www.dpconline.org/digipres/champion-digital-preservation/bit-list>.

⁷⁴ President Biden Delivers a Farewell Address to the Nation, 2025. <https://www.youtube.com/watch?v=5YgfNi9VGco>.

⁷⁵ Rep. Gallagher, Mike [R-WI-8. "Text - H.R.7521 - 118th Congress (2023-2024): Protecting Americans from Foreign Adversary Controlled Applications Act." Legislation, March 14, 2024. 2024-03-05. <https://www.congress.gov/bills/118th-congress/house-bill/7521/text>.

⁷⁶ Boynton, Brian M, Edwin S Kneeder, Sopan Joshi, Mark R Freeman, Sharon Swingle, Daniel Tenny, Casen B Ross, Sean R Janda, and Brian J Springer. "Brief of Respondent Merrick B. Garland, Attorney General, No. 24-656 and 24-657," December 27, 2024.

⁷⁷ Edward J. Markey. "Senator Markey to Introduce Bill to Extend Deadline for TikTok Ban, Takes to Senate Floor in Support of Vibrant Online Communities | U.S. Senator Ed Markey of Massachusetts," January 13, 2025. <https://www.markey.senate.gov/news/press-releases/senator-markey-to-introduce-bill-to-extend-deadline-for-tiktok-ban-takes-to-senate-floor-in-support-of-vibrant-online-communities>.

users to download their own TikTok data as an act of preservation;⁷⁸ however, this data cannot represent the social and interactive context provided by the platform interface, which is an integral component of social media objects -- users may be able to preserve their data, but they cannot preserve the digital objects in their entirety.

Social media objects are very difficult to acquire comprehensively due to their proprietary and interactive nature. Still, corporate control of social media networks overlay for further challenges, with restrictive policies that can change at any point (as was the case with Tumblr),⁷⁹ the shift towards platform interfaces removing data access APIs, and the AI boom leading sites to change their policies, preventing access from the crawlers that are used for web archiving.⁸⁰

Across Social Media Objects: Privatization and Technological Innovation

The democratization of digital media and content creation has led to an unprecedented volume of digital material and, consequentially, an unprecedented volume of digital objects that warrant preservation. The amplification in digital media production incentivized corporations to develop services, solutions, and technological advancements necessary to use and manage digital media but also encouraged the broadening of corporate control over digital media.⁸¹ This privatization ultimately resulted in proprietary platform interfaces, file types, and services as a form of market manipulation and control,^{82,83} which pose challenges around the acquisition and management of objects.⁸⁴

The impact of proprietary technology across social media objects can be seen through the expanded purview of AI usage in social media creation and dissemination,⁸⁵ which introduces additional layers of complexity to preservation efforts in the form of intellectual property concerns as well as scope-based uncertainties. For instance, when considering AI-produced images featured within a social media post, is contextually preserving those image objects as simple as only considering the included images? Or should the preservation object include the prompt, process, and source material that generated those specific images? This scope is further

⁷⁸ "Requesting Your Data | TikTok Help Center." Accessed January 16, 2025. <https://support.tiktok.com/en/account-and-privacy/personalized-ads-and-data/requesting-your-data>.

⁷⁹ Baumhofer, Emma, and Bernard F. Reilly Jr. "Preserving Open Source Digital Evidence," 2022.

⁸⁰ Davidson, Brittany I., Darja Wischerath, Daniel Racek, Douglas A. Parry, Emily Godwin, Joanne Hinds, Dirk Van Der Linden, Jonathan F. Roscoe, Laura Ayravainen, and Alicia G. Cork. "Platform-Controlled Social Media APIs Threaten Open Science." *Nature Human Behaviour* 7, no. 12 (November 2, 2023): 2054–57. <https://doi.org/10.1038/s41562-023-01750-2>.

⁸¹ Cameron, Fiona R. *The Future of Digital Data, Heritage and Curation: In a More-than-Human World*. 1st ed. Routledge, 2021. <https://doi.org/10.4324/9781003149606>.

⁸² Khan, Lina M. "The Separation of Platforms and Commerce." *Columbia Law Review* 119, no. 4 (May 1, 2019): 973–1098.

⁸³ De Vos, Martijn, Georgy Ishmaev, and Johan Pouwelse. "Decentralizing Components of Electronic Markets to Prevent Gatekeeping and Manipulation." *Electronic Commerce Research and Applications* 56 (November 2022): 101220. <https://doi.org/10.1016/j.elerap.2022.101220>.

⁸⁴ *It's about Time: Research Challenges in Digital Archiving and Long-Term Preservation : Final Report : Workshop on Research Challenges in Digital Archiving and Long-Term Preservation, April 12-13, 2002*. Library of Congress, 2003.

⁸⁵ Cameron, Fiona R. *The Future of Digital Data, Heritage and Curation: In a More-than-Human World*. 1st ed. Routledge, 2021. <https://doi.org/10.4324/9781003149606>.

muddled by the integration of proprietary AI tools into social media platform interfaces. Regarding intellectual property, there are additional questions when considering how human authorship factors into these objects. Different groups of people wrote the algorithms that produced these images, created the source images that AI systems were trained upon, provided the prompt that guided the creation of these specific images and created the social media post that disseminated these images as part of another object.

These considerations introduce further complexity to already murky legal and ethical issues, as was the case with fashion brand Selkie Incorporated. Selkie's owner and designer, Kimberley Gordon, drafted a fabric pattern that featured images of kittens but opted to use AI-generated kittens in lieu of her usual practice of sourcing kitten images from the public domain. Gordon then incorporated the kittens into the rest of her design, which was created without AI, and the resulting fabric was used to create a fashion line. The vast majority of the year-long design, patterning, creation, and production process was Gordon's own art and labor, but the incorporation of generative AI elements led to extensive criticism and social media discussion of AI ethics, a discourse which broadly disseminated images of the fabric in a critical context, and ultimately resulted in online communities boycotting the brand on ethical and moral grounds.⁸⁶

This relatively low-stakes and simplistic example of a social media movement with AI components already displays ambiguous issues of authorship, media interaction, and the significant characteristics of an original work. In a preservation context, not knowing if (or how) the use of AI changes who has authorship rights of the fabric, how the community discourse around this fabric is affected by the reliance on contextual access to images of the fabric, or how these social media objects are defined by social interaction around the fabric are foundational challenges to the preservation of social media records -- issues which will be further amplified with every continued technological advance, and corresponding complexity of discourse.

In addition to affecting the characteristics of individual social media objects, commercial motivations also pose challenges to mechanisms and efforts of digital preservation itself. Many systems, services, solutions, and mechanisms borne out of corporate profit-seeking behavior are foundational to digital preservation processes. Preservation methods are unavoidably and inherently reliant on monetized proprietary platforms, vendors, services, and technology for anything from cloud storage to sending emails. However, these businesses are chiefly passionate about their service's ability to garner money. They are not necessarily interested in the significance of these services' roles in the communities that rely upon them -- a concerning reliance for a field facing constant budget cuts.

This preservation obstacle is demonstrated through the rise of proprietary technology affecting ongoing preservation activities and can be seen through the privatization of storage media and the ubiquity of proprietary cloud storage solutions.⁸⁷ Preservation storage is a continuous and long-term commitment, and as cloud storage providers are financially motivated, their best

⁸⁶ Sung, Morgan. "Selkie Founder Defends Use of AI in New Dress Collection amid Backlash | TechCrunch," January 19, 2024. <https://techcrunch.com/2024/01/19/selkie-founder-defends-ai-collection-kimberley-gordon-valentines-day/>.

⁸⁷ Oliver, Gillian, and Steve Knight. "Storage Is a Strategic Issue: Digital Preservation in the Cloud." *D-Lib Magazine* 21, no. 3/4 (March 2015). <https://doi.org/10.1045/march2015-oliver>.

interests are in direct opposition to those of cultural heritage institutions.^{88,89}

Reliance on these services begets a financial power imbalance that can ultimately hinder or devastate preservation efforts. If, at any point, an institution is unable to pay the storage costs, which are determined to maximize profits, there's a resulting loss of access to the stored digital materials and potentially the permanent loss of the stored materials altogether. Even for well-funded institutions, the scale of time that a digital object would ideally be preserved poses concerns when compared to the short-term financial interests of corporations. These companies may decide to sunset cloud storage services in lieu of other areas of technology development, or in the case of cloud storage app Ever, permanently shut down, giving users only one week to retrieve all their media from the service before deleting the servers.⁹⁰

Globally and Pervasively: Challenge in the Digital Preservation Landscape

Capitalism's cycle of production and consumption resulted in climate change,⁹¹ with far-reaching implications that affect every aspect of human society -- one of the most pressing challenges of our time. Extensive literature exists on the impacts of climate change in relation to digital preservation, while this section's focus will be on the specific nexus of climate change and capitalism, which creates interconnected and contradictory challenges for digital preservation.

The relationship between climate change and digital preservation is multifaceted and paradoxical. Climate change poses significant risks to physical materials, driving the necessity for digital preservation as a form of risk mitigation to safeguard information and cultural artifacts from rising sea levels, extreme weather events, and other "acts of God." However, servers generate substantial heat and consume significant amounts of energy, while the nature of digital preservation activities as perennial and multiplicative requires employing many servers for many decades. The environmental impact of digital preservation is significant⁹² as well as ironic -- digital preservation activities directly contribute to the problem by attempting to mitigate it.⁹³

This paradox can be seen when considering the preservation of Tuvalu, a South Pacific nation facing existential threat due to rising sea levels. In a pioneering yet controversial move, Tuvalu partnered with social media giant Meta to create a digital clone of their country.⁹⁴ This initiative

⁸⁸ Khan, Lina M. "The Separation of Platforms and Commerce." *Columbia Law Review* 119, no. 4 (May 1, 2019): 973–1098.

⁸⁹ Harvey, D. R., ed. *Preserving Digital Materials*. München: K.G. Saur, 2010.

⁹⁰ Potuck, Michael. "Photography Backup Service 'Ever' Will Never Work Again Due to iCloud and Google Photos Competition." 9to5Mac, August 24, 2020. <https://9to5mac.com/2020/08/24/ever-photo-backup-service-shutting-down/>.

⁹¹ Baer, Hans A. "Global Capitalism and Climate Change." In *Handbook on International Political Economy*, 395–414. WORLD SCIENTIFIC, 2011. https://doi.org/10.1142/9789814366984_0023.

⁹² Matthew Addis. "What Is the Carbon Footprint of Large-Scale Global Digital Preservation? - Digital Preservation Coalition," October 3, 2023. <https://www.dpconline.org/blog/blog-matthew-addis-ipres23>.

⁹³ Pendergrass, Keith L., Walker Sampson, Tessa Walsh, and Laura Alagna. "Toward Environmentally Sustainable Digital Preservation." *The American Archivist* 82, no. 1 (March 1, 2019): 165–206. <https://doi.org/10.17723/0360-9081-82.1.165>.

⁹⁴ Fainu, Kalolaine. "Facing Extinction, Tuvalu Considers the Digital Clone of a Country." *The Guardian*, June 27, 2023, sec. World news. <https://www.theguardian.com/world/2023/jun/27/tuvalu-climate-crisis-rising-sea-levels->

aims to preserve Tuvalu's cultural heritage and national identity in the face of climate change-induced destruction. However, the very act of creating and maintaining this digital replica contributes to the climate crisis that threatens Tuvalu's physical existence. The contradiction is continued with the direct reliance on capitalist entities through Meta's involvement. At the time of writing, Meta is the single largest social networking company, the 7th most valuable company in the world, and in 2023, produced over 14 million metric tons of greenhouse gases.⁹⁵ In 2024, Meta spent between \$38 billion and \$40 billion in revenue on further development and infrastructure of AI technology due to AI's "high return on investment," yielding greater corporate profits,⁹⁶ and in a parallel to the paradox within digital preservation, reports to use AI to offset the carbon footprint that is generated by their AI use.⁹⁷

Corporations prioritize financial gain over environmental stewardship, causing environmental damage while offering technological strategies for mitigating the effects of climate change to those who can afford them. This is a privilege of wealth inequality, where the ability to implement to mitigate climate impacts correlates with available financial resources, one that continues through digital preservation. Wealthier entities are better positioned to invest in advanced preservation technologies and climate resilience measures, while less affluent communities may struggle to protect their heritage and adapt to changing environmental conditions.⁹⁸

The drive to preserve our cultural heritage and information through digital means, while necessary in the face of climate threats, contributes to the very problem it seeks to address and faces additional challenges in relation to financial power, inequality, and the capitalist-driven treadmill of climate change.

Byte Back

As we move forward, we must consider these interconnections and seek solutions that address archival silences, promote equitable access to preservation technologies, and balance the needs of individuals, industries, and the planet.

Capitalism is reliant on the belief that it is the only viable economic system, but there are existing movements of archivists, activists, and communities demonstrating that alternative approaches to digital preservation practices not only exist but are effective at safeguarding our digital cultural heritage. These approaches emphasize community-driven and democratized

[pacific-island-nation-country-digital-clone](#).

⁹⁵ Calma, Justine. "Are Meta's Carbon Emissions Shrinking? Depends on How You Look at It." *The Verge*, August 28, 2024. <https://www.theverge.com/2024/8/28/24230481/meta-sustainability-report-carbon-footprint-renewable-energy-climate-change>.

⁹⁶ Meta Platforms, Inc. (META). "Third Quarter 2024 Results Conference Call." October 30, 2024.

⁹⁷ Clancy, Heather. "The Meta Dilemma: Invest Billions in AI but Find Ways to Cut Emissions Too." *Trellis*, November 4, 2024. <https://trellis.net/article/the-meta-dilemma-invest-billions-in-ai-but-find-ways-to-cut-emissions-too/>.

⁹⁸ Burton-Chellew, Maxwell N., Robert M. May, and Stuart A. West. "Combined Inequality in Wealth and Risk Leads to Disaster in the Climate Change Game." *Climatic Change* 120, no. 4 (October 1, 2013): 815–30. <https://doi.org/10.1007/s10584-013-0856-7>.

preservation efforts, which are apropos for the era of democratized information.^{99,100}

Rogue Archivists and the Democratization of Preservation

One of the most significant and pervasive challenges in digital preservation is the ephemeral nature of online content. Nearly 11% of digital content is lost each year, a very short lifespan resulting in the abrupt and permanent loss of millions of user-generated digital cultural heritage objects.¹⁰¹ In response to this issue, groups of "rogue archivists" have emerged, working to preserve democratized vulnerable digital content, such as when a website announces its impending closure or large-scale content removal, as occurred due to the aforementioned change in Tumblr's content policy. Organizations like Archive Team have been at the forefront of these preservation efforts, racing against the corporate clock to save at-risk digital content from platforms such as MySpace and Geocities, as well as the "Tumblr NSFW" content discussed in a previous section of this paper.¹⁰² These rogue archivists use digital preservation technologies and tools to create enormous and accessible repositories that, unlike traditional cultural heritage institutions, can preserve vast quantities of information, as they are not subject to the same types of physical or digital space restrictions and additionally are not limited by topical or subject-based collecting policies, and can collect materials that have been historically excluded, such as materials representing marginalized perspectives.¹⁰³

This democratization of preservation efforts demonstrates a notable shift from traditional, institutionalized hegemonic approaches by prioritizing preservation above all else.¹⁰⁴ Through enabling individuals and independent groups to work on the preservation of materials that they personally find significant, rogue archivists are broadening both the scope of what materials are deemed worthy of preservation, as well as giving curatorial and selection power to those who would not otherwise have the opportunity.¹⁰⁵ Through constructing these repositories, rogue archivists are challenging gatekeeping inherent to many traditional cultural heritage institutions and ensuring that a more diverse range of voices, experiences, and content types are preserved for future generations.

Archival Activism and Community Centering

Archival activism is another powerful alternative to capitalist-driven and hegemonic

⁹⁹ Jolles, Jen. "Past Perfect: Prospects for the Future of Digital Memory." Rutgers, The State University of New Jersey, 2019.

¹⁰⁰ De Kosnik, Abigail. *Rogue Archives: Digital Cultural Memory and Media Fandom*. The MIT Press, 2016. <https://doi.org/10.7551/mitpress/10248.001.0001>.

¹⁰¹ SalahEldeen, Hany M., and Michael L. Nelson. "Losing My Revolution: How Many Resources Shared on Social Media Have Been Lost?" arXiv, September 13, 2012. <http://arxiv.org/abs/1209.3026>.

¹⁰² Lepore, Jill. "Can the Internet Be Archived?" *The New Yorker*, January 19, 2015. <https://www.newyorker.com/magazine/2015/01/26/cobweb>.

¹⁰³ De Kosnik, Abigail. *Rogue Archives: Digital Cultural Memory and Media Fandom*. The MIT Press, 2016. <https://doi.org/10.7551/mitpress/10248.001.0001>.

¹⁰⁴ Ogden, Jessica. "'Everything on the Internet Can Be Saved': Archive Team, Tumblr and the Cultural Significance of Web Archiving." *Internet Histories* 6, no. 1–2 (April 3, 2022): 113–32. <https://doi.org/10.1080/24701475.2021.1985835>.

¹⁰⁵ De Kosnik, Abigail. *Rogue Archives: Digital Cultural Memory and Media Fandom*. The MIT Press, 2016. <https://doi.org/10.7551/mitpress/10248.001.0001>.

mechanisms, instead employing proactive archival practice as a form of advocacy¹⁰⁶ to counter silences of imperialism, capitalism, and colonialism in current culture and society. Community archiving initiatives adapt and apply these principles at a local and community level.¹⁰⁷

Archiving the Black Web (ATBW) is one such example, as a grant-funded collaborative project that uses web and social media archiving to document the online Black experience.¹⁰⁸ Through web archiving, web archiving training programs, and applied research initiatives on the Black web, ATBW equitably recenters Black narratives, history, and agency.¹⁰⁹ This activist-centric approach enables the preservation of cultural heritage through community support, challenging the capitalist notion of information and heritage as a commodity to be owned and exploited, instead recentring it as a communal resource and empowering members of communities to assume control of their own historical narratives and cultural heritage.¹¹⁰

The approach of ATBW, as with other community archiving programs, is successful at preserving cultural heritage in the short-term but is powerful in its focus on developing self-sufficient and sustainable preservation efforts, where community training, interest, support, and involvement can result in successful long-term ethical stewardship.

Counter-Capitalist Solutions

While community-driven initiatives focus on the social aspects of preservation, technological solutions also play a significant role in preservation efforts with reduced reliance on capitalism. The emergence of free and open-source software, or F/OSS, as well as piracy for preservation, have provided new avenues for digital preservation that operate outside capitalist market mechanisms, relying on community efforts and shared resources to build and maintain software as an alternative to the usual profit-driven software development model by popular and mainstream entities.¹¹¹

There are ample open-source options for digital preservation that are either designed for (or are used in) a variety of digital preservation activities for cultural heritage institutions. The Open Preservation Foundation creates and maintains a set of open-source preservation tools, collaborative projects, and preservation resources through a community of cultural heritage institutions internationally,¹¹² and a survey of eleven open-source projects across digital

¹⁰⁶ Society of American Archivists. "SAA Dictionary: Activist Archivist." Accessed May 27, 2024.

<https://dictionary.archivists.org/entry/activist-archivist.html>.

¹⁰⁷ Caswell, Michelle. "Seeing Yourself in History: Community Archives and the Fight Against Symbolic Annihilation." *The Public Historian* 36, no. 4 (November 1, 2014): 26–37. <https://doi.org/10.1525/tph.2014.36.4.26>.

¹⁰⁸ "ATBW – Archiving The Black Web." Accessed January 11, 2025. <https://www.archivingtheblackweb.org/>.

¹⁰⁹ The College of Wooster. "Creating a Professional Training Program and Research Initiative on the Study of the Black Web, Archiving the Black Web Receives \$2.5 Million Grant from the Mellon Foundation," March 8, 2023. <https://wooster.edu/2023/03/08/creating-a-professional-training-program-and-research-initiative-on-the-study-of-the-black-web-archiving-the-black-web-receives-2-5-million-grant-from-the-mellon-foundation/>.

¹¹⁰ Caswell, Michelle. "Toward a Survivor-Centered Approach to Human Rights Archives: Lessons from Community-Based Archives," 2014. <https://escholarship.org/content/qt73f5s7sr/qt73f5s7sr.pdf>.

¹¹¹ Keltz, Christopher M. *Two Bits: The Cultural Significance of Free Software*. Duke University Press, 2008. <https://doi.org/10.1215/9780822389002>.

¹¹² Open Preservation Foundation. "Powered by OPF." Open Preservation Foundation. Accessed January 16, 2025. <https://openpreservation.org/resources/powered-by-opf/>.

preservation activities compares the strategies and features of these projects as preservation solutions.¹¹³ Institutions can also take a homegrown approach, as NC State University Libraries has done, developing an integrated series of homegrown scripted workflows to manage preservation workflows in-house.¹¹⁴ Ultimately, the growth and adoption of these options enable both traditional hegemonic institutions and community-driven institutions to circumvent the tyranny of capitalism through the preservation of software and workflows.

While the F/OSS model works on reducing capitalism's influence by the deliberate exclusion of any corporate financial motivation, piracy similarly works in opposition to corporate interests but does so as a direct countermeasure that pushes back against capitalist mechanisms. Historically, piracy by individuals and communities has played a requisite role in ensuring the enduring preservation of digital media, to the extent that pirated copies are often the only sources still standing.¹¹⁵ This is a trend that will continue, considering how social media platforms and networks, as corporations, are primarily interested in digital objects in terms of profitability, while preservation is a permanent and perennial commitment to losing money. In this light, it's unsurprising that piracy is a key and necessary contributor in digital preservation efforts¹¹⁶ as well as an inescapable reality for social media preservation due to the privatization of social media networks directly leading to the obstruction of legal tools, workflows, and access required for the preservation of both social media objects and social media platform interfaces.¹¹⁷ For social media capture, there is simply no method for legal acquisition -- piracy is the only option.

Conclusion

Capitalism is a pervasive force responsible for centuries worth of financially motivated systemic injustice, with deep roots and an omnipresent nature reflected in the cascading challenges of social media preservation, ultimately perpetuating community and individual harm while concurrently hindering efforts to safeguard digital heritage.

Capitalism harms all individuals through mechanisms of colonialism, marginalization, elitism, disparagement of those perceived to have inferior socioeconomic standing and extreme wealth inequality. This effect manifests as a challenge to preservation efforts through the devaluing of cultural heritage work, resulting in tangible harm to the labor classes by diminishing access to basic securities such as housing, food, and medical care. This leaves preservation professionals in vulnerable situations, which are subsequently amplified by extreme job competition that pits the labor class against itself in a race to the bottom, where the prize is the allocation of

¹¹³ Davidson, Brittany I., Darja Wischerath, Daniel Racek, Douglas A. Parry, Emily Godwin, Joanne Hinds, Dirk Van Der Linden, Jonathan F. Roscoe, Laura Ayravainen, and Alicia G. Cork. "Platform-Controlled Social Media APIs Threaten Open Science." *Nature Human Behaviour* 7, no. 12 (November 2, 2023): 2054–57. <https://doi.org/10.1038/s41562-023-01750-2>.

¹¹⁴ Black, Shelly, Brian Dietz, and Trevor Thornton. "Scaling Up Digital Preservation Workflows With Homegrown Tools and Automation." In *iPRES 2024*, 2024. <https://doi.org/10.21428/5676bf2d.89f79037>.

¹¹⁵ De Kosnik, Abigail. "Piracy Is the Future of Culture: Speculating about Media Preservation after Collapse." *Third Text* 34, no. 1 (January 2, 2020): 62–70. <https://doi.org/10.1080/09528822.2019.1663687>.

¹¹⁶ Hegarty, Kieran. "Representing Biases, Inequalities and Silences in National Web Archives: Social, Material and Technical Dimensions." *Archives & Manuscripts* 50, no. 1 (September 2, 2022): 31–45. <https://doi.org/10.37683/asa.v50.10209>.

¹¹⁷ Digital Preservation Coalition. "The Global 'Bit List' of Endangered Digital Species," November 2024. <https://www.dpconline.org/digipres/champion-digital-preservation/bit-list>.

necessities.

The harmful impact of capitalism on social media preservation initiatives is equally significant. Considering how capitalistic mechanisms devalue cultural heritage work, it is unsurprising that this is predicated by the devaluation of cultural heritage as a concept, resulting in a society prioritizing the profitable content endeavors over the unprofitable. This has yielded a capitalist model of digital media distribution that has created a self-referencing network of corporate ownership and control, where companies hold power over digital objects' creation, accessibility, presentation, methods of distribution, and international availability. This concentration of control by corporations has the potential to present significant challenges to preservation efforts from every angle.

When we consider how capitalism harms people in tandem with how capitalism harms preservation, it is clear that capitalism is fundamentally at odds with the goals and principles of preservation, which exist and operate *despite* financial incentives, not because of them. Preservation should *not* be used to support capitalist structures and those in power; rather, it must support the people and perspectives that capitalism has minimized and underrepresented.

In discussing the numerous challenges and limits to social media preservation that originate in our society's preoccupation with profitability, it is evident that capitalism's ouroboros should not be relied upon to provide adequate solutions to the very problems it creates. Instead, we must consider viable alternatives that operate outside of, or in opposition to, capitalist market-driven approaches, ultimately providing effective systems that are more inclusive and ethical, emphasizing community stewardship and sustainable strategies for preserving digital cultural heritage.

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