

# Piloting Shared Born-Digital Archives between the US and Europe

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## Abstract

Containing several thousand works from the 1980s to today, the Electronic Literature Organization's (ELO) The NEXT, created and managed by the Electronic Literature Lab (ELL, Washington State University Vancouver), is the largest repository of born-digital literature and net art on the web. It provides free online access to early hypertext fiction, animated poetry, literary games, and more, including many works otherwise now inaccessible due to obsolete software and hardware requirements. This essay presents a project to extend ELO's The NEXT by setting up a new server in France to hold a copy of the collections, developing local curatorial and research activities to preserve European works, to be shared back with the US server, and growing a digital art and literature preservation network in Europe for sharing and collaboration. The project will include a participative Wikidata initiative on electronic literature to enhance the discoverability and searchability of the collections, which could be an opportunity to integrate this born-digital literature focused archive with the Connecting Archives project and feed the data into a shared database. The paper invites discussion on the requirements of such alignment and the best way of working together towards a global new media archive.

## Keywords

Electronic literature, net art, born-digital literature, born-digital literary archives, emerging formats, born-digital preservation, distributed archives

## Introduction

This essay has two main objectives. First, we present a pilot project to grow the currently largest fully open-access born-digital literature repository, ELO's The NEXT, managed by the Electronic Literature Lab (ELL) at Washington State University Vancouver (WSUV), into a distributed network of shared born-digital literature archives worldwide. [1] On this basis, we then invite discussion on how this project could contribute to, and be aligned with, the Connecting Archives initiative. As such, this essay addresses Topic 1 and 3 of the Summit: "Building on the results of Summit 1 & 2" and "Ideas and proposals to help the Connecting Archives project". More specifically, it is relevant to the following topics from the 1<sup>st</sup> and 2<sup>nd</sup> Summit: Communication and

Coordination among Archivists; New Directions in Online Archiving; and New Technologies for Archiving. We build on the following papers from Summit 1 and 2 (connections specified in parentheses): Scott Rettberg: ELMCIP Electronic Literature Knowledge Base (2020) (building on the CELL network and creating a networked archive for collection and preservation); Bonnie Mitchell, Alexa Mahajan, Luis Wilson, Dalton Lopes Martins: Interconnecting Archives: Paving a Path Forward (2022 panel) (LOD development with a view to and integrated born-digital art and literature database); Tabea Lurk & Jürgen Enge: Accessing and Displaying the Archive (2022) (human accessibility assessment and enhancement); Bonnie Mitchell, Janice T. Searleman, Wim van der Plas & Terry C. W. Wong: Connecting new media art archives worldwide (2022) (connecting archiving efforts, practices, and resources); Oliver Grau, Laura Ettl, Philipp Hoffmann, Alexander Wöran & Carla Zamora: Revealing Higher Impact of Media Art Archiving (interest in application of the archives in teaching); and Bonnie Mitchell & Oliver Grau: Towards a Global Distributed Network of New Media (2022 roundtable) (interest in joining a global network of new media archives).

## Context

### Electronic Literature

Born-digital or electronic literature – broadly defined as works that engage with the computer's specific capabilities and exhibit a substantial creative linguistic aspect – is situated at the crossroads of literary traditions, language, visual arts, digital technology, and contemporary culture. As such, it constitutes a continuum with other forms of born-digital art and writing, including computer art, net art, new media art, and video games. Since the 1980s, from hypertext fiction to animated poetry and literary games, and most recently social media-based projects and AI-generated texts, born-digital literature has represented a forward-looking aspect of culture, offering critical insights into how language, art, literary traditions, and technology have impacted one another, and marking a new paradigm in the history of writing comparable in importance only to the birth of print literature. [2] [3] Such "complex digital publications", however, represent a collection and preservation challenge for archives, libraries, and museums because they are highly

unstable, including when archived: the hardware, software, and infrastructures they rely on are subject to rapid change, deterioration, and obsolescence. [4] [5] Finding technical solutions for stabilizing and making these artefacts accessible for researchers and the general public is, therefore, essential for our understanding of late-20<sup>th</sup> and 21<sup>st</sup>-century culture and society. [6] [7] In the age of growing concerns about the environmental and health impact of global travel, it is also crucial to establish archives and exhibition spaces fully accessible remotely.

ELO's The NEXT contains over 3000 works of born-digital literature and net art and scholarly information relating to them. All works listed in the catalogue are archived in the repository, that is to say that the ELL holds a copy of the actual files pertaining to the work deposited by the copyright holders. The web interface presents the works grouped in author, journal, or anthology-focused collections, and proposes showcases and thematic exhibitions.

### History and rationale of the project

Led by Dene Grigar and supported by WSUV and the international community of ELO, ELL has been at the forefront of devising solutions for both the preservation and presentation of born-digital literature, with a particular focus on making available otherwise now inaccessible works, such as those created with the recently discontinued Adobe Flash. The cutting-edge virtual museum/library/preservation space of The NEXT makes 40 collections of born-digital literature accessible to the public, including visitors with disabilities, facilitating both scholarly research and exploration by non-specialists. Currently in its fourth phase of development, ELO's The NEXT was originally seeded in 2018 by a grant from The Andrew W. Mellon Foundation submitted by Grigar and others. Phase 1 saw the development of the repository and the production of metadata of the individual works. Providing support during this phase was the Electronic Textual Cultures Lab at the University of Victoria and Compute Canada. Phase 2, begun in fall 2020, resulted in a new user-friendly interface and the extended metadata schema, ELMS. Phase 3, completed in May 2021, saw the reconceptualization and reconstruction of the site into a virtual, multimedia space and rebranding as ELO's The NEXT.

With this foundation established, it is now ready to be distributed to international research sites for assured durability and accessibility over time, and for a distributed and diversified collection development and use. Sharing copies of the archives to labs and servers in different physical locations will ensure enhanced safekeeping. A distributed network will also enable various teams to work on different preservation projects and enrich the collections simultaneously, sharing them across the network for safekeeping and alternative access. These efforts will help to address two of the main challenges currently facing born-digital literature preservation: the fact that 1) there is an important amount of works waiting to be archived and at risk of being lost due to technological obsolescence and lack of accessibility, and 2) that this digital heritage exists across continents, countries, and languages, requiring a variety of language competency,

expertise in the given cultural space, and local access and connections to identify and obtain existing copies of works as well as the authorization to make them available in an open-access repository. We propose to build The NEXT France as a pilot and first new site of a planned network, providing the opportunity to develop the necessary workflow for sharing and enriching collections and metadata across borders and languages.

European national libraries, such as the French National Library (BnF) and the British Library (BL) have been collecting and researching emerging formats in recent years, feeding the French Archives de l'internet and the UK Web Archive and building thematic collections of captured playable instances of interactive websites. [8] [9] They have also been experimenting with collecting other formats, such as video games, electronic literature on now obsolete physical media (BnF), or apps (BL), and aiming to scale up their collecting activities via collaborations with other institutions that pioneer digital preservation research. The BnF has also collaborated with digital poet and scholar Philippe Bootz in making accessible some of the now otherwise inaccessible classics of French digital poetry on designated computer terminals in a reading room. [10] Due to the relevant legal deposit legislation as well as practical limitations related to obsolete dependencies, emerging formats are mostly accessible onsite in both national libraries, however. The BL is nevertheless also interested in connecting with openly available online collections, in line with its "Enabling access for everyone: the British Library's content strategy 2020-2023".

Other projects such as ELMCIP, Rhizome, and ADA offer information about works, displaying them via external links, but mostly not hosting the works themselves. More than a database or directory, ELO's The NEXT is unique as a *repository* of openly accessible local files of born-digital literature and net art and detailed documentation as an enhanced curation approach. [11] [12] [13] While institutional structures often separate born-digital art and literature, the boundaries remain blurred, and much of the preservation and curation concerns and methods are similar. Archives and preservation initiatives, just like research, often exist in isolation. [14] With this project, we also aim to open new avenues to sharing collection and preservation practices of works being made today with cutting edge technologies, including extended reality, AI, geo-location, live data/live coding, and social media.

### Project Goals

In setting up The NEXT France, our goal is, therefore, to provide a proof of concept for a distributed network of shared born-digital literary archives and to develop born-digital literature preservation activities in France. We will address the following research questions:

- How can we secure born-digital art and literature archives and enhance preservation practices through a network of connected archives and preservation labs?
- How can we best improve the use, visibility, accessibility, and interoperability of born-digital archives through

enhanced metadata and linked open data (LOD) and join the Connecting Archives initiative? [15]

- What can preservation teach us about born-digital literature and the interactions between language, culture, and technology?
- What are the interests and challenges shared across born-digital art and literature preservation, curation, and research, and how can collaboration stimulate insights?

The specific objectives of the project are to:

1. Set up a server for a born-digital literature archive in France – namely, at the Laboratoire Patrimoine, Littérature, Histoire (PLH, Heritage, Literature, History Laboratory) based at the University of Toulouse 2 Jean Jaurès, potentially in collaboration with the Costech laboratory of the University of Technology of Compiègne, holding a version of ELO's The NEXT, thereby piloting a global distributed network of digital literature labs; [16]
2. Create the first born-digital literature library in France that will act as a proactive interdisciplinary research networking hub and experimental space, federating existing and emerging electronic literature preservation initiatives in Europe, building on the ELO and CELL networks;
3. Initiate a US-France collaboration for the development of born-digital preservation practices and pilot the workflow for networked collection development, with a focus on:
  - 3.1. Refining the metadata schema for emerging digital formats and developing LOD for born-digital literature through Wikidata, in collaboration with the Connecting Archives project for interoperability
  - 3.2. Piloting the integration of The NEXT catalogue into a standard French university library catalogue for increased visibility for teaching and research;
  - 3.3. Developing the collections further with French and other European born-digital literature;
4. Raise the visibility and increase awareness of the relevance of born-digital art and literature for digital cultural literacy, actively engaging with a range of audiences in critical thinking about the interactions among language, culture, and technology.

## Methodology

### Creating The NEXT France server and migrating collections

ELO's The NEXT has been built with open web languages and hosted on a basic Apache server, making it possible to port it to another site. Because ELO's The NEXT holds thousands of born-digital works, however, once moved it is crucial to test them in order to ensure that all files have been transported and any software dependencies, addressed.

Based on ELL's experience, we anticipate the migration and testing to take eight months. The virtual server created for hosting The NEXT France will be managed by a project technician trained by ELL's experienced technician, under the supervision of the local French project lead, and guidance from the local information systems services. The NEXT France web resource will initially copy ELO's The NEXT, then develop its own identity with a recognizable family link to The NEXT network in its appearance.

## Collection and metadata development

### Refining metadata for born-digital literature

To address the specificity needed for the born-digital, interactive, and experiential materials that ELO's The NEXT collects, ELL extended the Metadata Object Description Schema (MODS) maintained by the Network Development and MARC Standards Office of the Library of Congress to include and expand upon taxonomies developed by the Consortium on Electronic Literature (CELL), resulting in ELMS (Extended eLectronic Metadata Schema). [17] [18] More recently, ELMS has been further extended to address the needs of visitors with disabilities and sensory sensitivities by identifying the materials' physical requirements and the accessibility tools needed, a project seeded by a grant from the Society of American Archivists. [19] This activity moves beyond the Americans with Disabilities Act in the US and the Equality Act of 2010, including the Disability Discrimination Act 1995 in the UK to address disabilities justice concerns.

### Develop linked open data on born-digital literature

We propose to work with Wikimedia France to set-up a born-digital literature Wiki project, tracking progress via the Programs & Events Dashboard. [20] We will organise two Wikithons to be held at the ELO conferences, building a community of volunteer editors to create and enhance Wikidata entities and Wikipedia articles of authors and works of notable born-digital literature, with a focus on the non-English speaking world, marginalised groups, including people with disabilities, LGBTQIA+, indigenous communities, religious minorities, and people of colour. We envision aligning this aspect of the project with the Connecting Archives project to ensure interoperability and that the data also feeds into the global database for better discoverability, complementing the information available on born-digital arts in the other participating archives. [21] [22]

### Library catalogue integration

We will work with Toulouse University Library's (BUC) metadata librarian to map the ELMS metadata to MARC, used by BUC. We will write a crosswalk script to translate the metadata for integration in the library catalogue. Addition of records to the live catalogue will be subject to approval by library staff to ensure they are an appropriate fit with the library's collections. The catalogued items will contain the link to the relevant item at The NEXT France.

This integration aims to affirm the place of electronic literature in the overall landscape of contemporary literature and facilitate teaching and research activities in the field.

### Collection development

A pilot born-digital preservation project will allow us to develop and test the workflows and infrastructure that enable the teams around each server to work independently on local initiatives and share new additions to the archives. The pilot will also make available the digital works published in the pioneering French digital periodical *alire*. [23] The 14 issues of this journal spread across its 20-year history contain 92 generative, animated, and multimedia poems created for evolving generations of PC and Mac. Working with founder, author, and editor Philippe Bootz, we will assess the works' technical requirements and create a virtual machine for each piece built with now obsolete software and hardware dependencies. This approach will emulate the original hardware and software environment and make the works executable on contemporary computers. We will of course only include works for which we can obtain authorization from the authors.

### Teaching, dissemination, and engagement

Based on the pilot experience of distributed collection development, we will prepare training materials for the global born-digital preservation community, as well as guidance for teachers, students, and the general public who will access the archives. The new European collection will also be the basis of teaching materials for new interdisciplinary undergraduate and postgraduate modules on digital art and literature, fostering collaboration among literature, art, media studies, and computing degree programs. We will welcome the results and experience of previous initiatives in shaping

our approach to designing teaching and learning activities based on the archives. [24]

The preservation activity and the new digital archive site and collection will also provide an opportunity to increase their visibility through a public launch event involving the local public library in Toulouse (Médiathèque José Cabanis) as well as the French National Library, with the participation of one or more artists whose work is included in the collection (ex. Philippe Bootz, Eric Sérandour). The archives being openly available including through the public libraries' computer terminals, we will also work with them to develop new approaches to digital literacy training for general audiences as part and continuation of their existing initiatives in this field.

### Conclusions

Overall, this project will provide a proof of concept for the distributed network of archives based on the premise of close collaboration through collection sharing and work division. It will elaborate the methodology of extending the network with new nodes as well as the preservation workflow and enhance safekeeping of the archives as well as their visibility. The LOD and participatory database development component will provide the possibility for joining the Connecting Archives initiative, reducing the disciplinary and institutional divide that separates creative born-digital artefacts into art and literature collections, while nevertheless also allowing to maintain the identity of the fields for practical and research purposes such as work division and historical approaches. We are currently seeking funding from national and international bodies for the realization of this project. We would like to invite discussion on the best ways of working together and moving forward and welcome expressions of interest in collaboration and partnership.

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## Authors’ Biographies

Erika Fülöp is Professor of Twenty-first-century Literature, Digital Humanities and Creative Writing at the University of Toulouse 2 Jean Jaurès, where she is a member of the Heritage, Literature, History laboratory. She was previously Lecturer then Senior Lecturer

in French Studies at Lancaster University (2015-2022), Postdoctoral Fellow of the Alexander von Humboldt Foundation at the Interdisciplinary Center for Narratology in Hamburg (2013-15), and Lecturer at New College, Oxford (2012-13). Since her doctoral thesis and first monograph on Proust and philosophy titled *Proust, the One, and the Many: Identity and Difference in À la recherche du temps perdu* (Oxford, 2012), she has been exploring diverse modes of authorship that question and expand the concept of writing and literature, especially digital modes of expression. In 2021 she benefitted from an [EPSRC grant](#) to learn about the technical aspects of creating and preserving digital work. Her research diary can be found [here](#).

Dene Grigar is Professor and Director of [Creative Media & Digital Culture](#) in the Department of Digital Technology & Culture at Washington State University Vancouver whose research focuses on the creation, curation, preservation, and criticism of born-digital media. She has authored 16 media works, 71 scholarly articles, and six books. She has curated exhibits at the British Computer Society, the Library of Congress, and for the Symposium on Electronic Art, among other venues. With Stuart Moulthrop (U of Wisconsin Milwaukee) she developed the methodology for documenting born-digital media, a project that culminated in an open-source, multimedia book, entitled *Pathfinders* (2015), and book of media art criticism, entitled *Traversals* (2017), for The MIT Press. Her forthcoming book is *Challenges of Born-Digital Literature: Editions, Translations, and Emulations*, co-authored with Mariusz Pisarski, for Cambridge UP. Grigar serves as the Managing Director & Curator of organization's [The NEXT](#) and directs the [Electronic Literature Lab](#).