Books Contain Multitudes: Exploring Experimental Publishing (2022 update)

Janneke Adema, Simon Bowie,
Marcell Mars, and Tobias Steiner

DOI: 10.5281/zenodo.6545475

copim

a project
funded by

UKRI Research England

ARCADIA
A CHARITABLE FUND OF
LISBET RAUSING & PETER BALDWIN

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INTRODUCTION

Books Contain Multitudes: Exploring Experimental Publishing is a three-part research and scoping report created to support the Experimental Publishing and Reuse Work Package (WP 6) of the COPIM project. It also serves as a resource for the scholarly community, especially for authors and publishers interested in pursuing more experimental forms of book publishing. This is the second version of this report (you can find the first version here), which includes feedback from our community, updates, as well as new additions to predominantly sections 2 (typology) and 3 (workflow and tools). For this second version of *Books Contain Multitudes* we have pulled in resources from another research report we have previously published on reuse and interaction with open access books, from a series of Twitter threads[1] that we have shared online, and from feedback received over this past year on the first version of this report. The resources from this research report and the Twitter threads as well as the feedback received are now incorporated in section 3 of this report.

COPIM (Community-led Open Publication Infrastructures for Monographs) is a 3-year project led by Coventry University as part of an international partnership of researchers, universities, librarians, open access (OA) book publishers and infrastructure providers and is funded by The Research England Development Fund and Arcadia—a charitable fund of Lisbet Rausing and Peter Baldwin. COPIM is building community-owned, open systems and infrastructures to enable OA book publishing to flourish, delivering major improvements in the infrastructures used by OA book publishers and those publishers making a transition to OA. The project addresses the key technological, structural, and organisational hurdles—around funding, production, dissemination, discovery, reuse, and archiving—that are standing in the way of the wider adoption and impact of OA books. COPIM will realign OA book publishing away from competing commercial service providers to a more horizontal and cooperative knowledge-sharing approach.

As part of seven connected Work Packages, COPIM will work on 1) integrated capacity-building amongst presses; 2) access to and development of consortial, institutional, and other funding channels; 3) development and piloting of appropriate business models; 4) cost reductions achieved by economies of scale; 5) mutually supportive governance models; 6) integration into library, repository, and digital learning environments; 7) the re-use of and experimentation with OA books; 8) the effective and robust archiving of OA content; and 9) knowledge transfer to stakeholders through various pilots.

In the Experimental Publishing and Reuse Work Package we are looking at ways to more closely align existing software, tools and technologies, workflows and infrastructures for experimental publishing with the workflows of OA book publishers. To do so, we have produced a set of pilot projects of experimental books, which are being developed with the aid of these new tools and workflows and integrated into COPIM's infrastructures. As part of these pilot projects, relationships have been established with open source publishing platforms, software providers, and projects focused on

[1] Introductory thread to the new COPIM ExpPub Thread series, "Chapter 1" on annotation tools; "Chapter 2" on platforms; "Chapter 3" on remix communities: and "Chapter 4", on open licensing, translations, and text and data mining.

experimental long-form publications and outreach activities have been and will be conducted with OA book publishers and authors to further promote experimental publishing opportunities. We have also explored how non-experimental OA books are (re)used by the scholarly community. As such, we have examined those technologies and cultural strategies that are most effective in promoting OA book content interaction and reuse. This includes building communities around content and collections via annotations, comments, and post-publication review (e.g., via the social annotation platform hypothes.is) to enable more collaborative forms of knowledge production. To achieve this, we have mapped both existing technological solutions as well as cultural barriers and best practices with respect to reuse as part of a research report on *Promoting and Nurturing Interactions with Open Access Books: Strategies for Publishers and Authors.*

We are also producing an online resource and toolkit, or Compendium, to promote and support the publication of experimental books. The **ExPub Compendium** will be an online resource which provides an easy-to-browse catalogue of experimental publishing tools, practices, examples of experimental books, and the relationships between them. This report has been produced to support both the development of the ExPub Compendium and the pilot projects we are developing together with partner publishers (including Open Humanities Press, Mattering Press, Open Book Publishers, and the LIBER Citizen Science Working Group). In parts one and two of this report, we situate experimental books in the context of academic research and map current experiments in book publishing in order to create a typology accompanied by a selection of examples of experimental book publishing projects. In part three of this report we then review existing resources on tools, platforms, and software used in the production of experimental books, and we sketch a roadmap and methodology towards the creation of the ExPub Compendium mentioned previously. To support the pilot projects we have made a start with exploring key practices within experimental publishing and the creation of experimental books that will feature within the Compendium: collaborative writing, annotation, versioning, remix, and computational publishing. As such we outline tools, platforms, software, and workflows that support and enable these practices next to describing the desired aspects we argue this technical infrastructure should cover.

Our thanks go out to our COPIM colleagues for feedback on earlier drafts of this report (with special thanks to Gary Hall, Julien McHardy, Samuel Moore, and Agata Morka) as well as to the participants of COPIM's Experimental Publishing Workshop, who read and engaged with the first part of this report (Mapping and Situating Experimental Books). Our appreciation also goes out to the Next Generation Library Publishing Project for sharing an early catalogue-in-progress version of SComCat with us, and to members of the Radical Open Access Collective for suggesting examples for the Typology of Experimental Books (part 2 of this report) — especially to Nicolás Arata, Dominique Babini, Maria Fernanda Pampin, Sebastian Nordhoff, Abel Packer, and Armanda Ramalho.

The title of this report, 'Books Contain Multitudes,' is based on a Twitter thread and blogpost by Julien McHardy for the workshop *Verlage Selber Machen* organised by the publishing initiative cache.ch.

PART 1: MAPPING & SITUATING EXPERIMENTAL BOOKS

by Janneke Adema, Marcell Mars, Tobias Steiner, and Simon Bowie

Mapping Experimental Books

The first part of this report seeks to map some of the different kinds of experiments that are currently taking place within the realm of scholarly book publishing. This includes experiments with the form and format of the scholarly book; with the various (multi)media through which books can be performed; and with the ways in which scholarship can be produced, disseminated, and consumed, as well as reviewed, reused, and interacted with. But it also includes experiments that reimagine the relationalities that constitute academic writing, research, and publishing, that want to rethink what research, scholarly communication and publishing are or do, and how they are currently organised. As such this report includes various speculations on what the future of the book and the humanities could look like, which we hope will inspire both publishers and authors to explore publication options that move beyond the printed codex-format as the standard publication choice, and that challenge the dominance of print-based processes within academic publishing (as being natural and the most suitable for all forms of research). Based on desk research, this report provides a typology of different types and forms of scholarly books, based on various experiments currently being conducted within academia, accompanied by a selection of examples to illustrate each of the different types identified.

Why map experimental publishing? Partly because there remains a gap between the professed need of publishers and academics to experiment more with (digital) media and the forms and formats the scholarly book can accommodate, and the expertise, skill sets, tools and technologies, and funding they have to actually do so (Adema & Stone, 2017). As such this report wants to provide an overview of different kinds of experiments to illustrate what is possible within this realm and what alternative forms and relationalities presses and authors are already experimenting with. This is to both promote and give visibility to the rich and diverse forms of digital scholarship, and multimodal and interactive research out there, and to help and inspire other presses and authors to conduct similar experiments themselves.

The focus in this report is on experimental books created with open source software, tools, or platforms (an overview of which will be provided in section three of this report), i.e., digital publishing tools that presses and authors can either freely use and/or further adapt themselves within their workflows. But beyond providing an overview of alternative publishing options, perhaps most importantly this report wants to map and build communities. Emphasising the political and socio-technical nature of our publishing tools and infrastructures (Okune et al., 2018), we hope this report will help establish relationships between software and tool providers, publishers, and authors, and create communities of expertise around experimental books. For technology providers this might lead to a further community uptake and adoption of the digital publishing tools they have created to support new forms of publishing. For presses and authors it provides them with examples to draw inspiration from, next to an overview of tools and technologies currently available to support these publishing experiments—as well as a way to potentially connect to the open source communities that maintain these tools and infrastructures, which might lead to further collaborations. But most importantly, we hope that

establishing these kinds of relationships will further enable and bring about the more equitable and community-led not-for-profit ecosystem to support academic book publishing that COPIM wants to help strengthen and bring about.

Although we hope that the typology as outlined in the second part of this report (see the addendum) will be a useful resource to these communities, it is not intended to provide a fixed classification or a definite delineation of different types of experimental books. As such it doesn't provide any clear-cut definitions of the various experiments undertaken within scholarly book publishing—if only because many of the examples discussed in this report will not always fit easily or comfortably within the categories identified here; many will also use alternative terminology to define and classify themselves, which differs from the ones applied here in this report to gather and collect different experiments together; and some will cross or integrate several categories within one project. Hence this typology does not neatly mirror the current landscape, nor will it be exhaustive. New experiments are already being undertaken and will change the categories identified here (merging them, solidifying them etc.). As such this mapping only provides a snapshot, a temporary overview and analysis, one that will hopefully be updated, revised, and re-used in different contexts.

In this respect analysing experimental publishing—perhaps more than established forms of publishing—requires a continuous re-mapping due to the nature of its speculative and emergent form, where any map will need to be repeatedly redrawn if we want to analyse experimental publishing's material-discursive practices. At the same time, we are aware of the performative character of our analyses (i.e., how any classification we suggest will provide further authority and weight to that classification), which will inherently be a factor in the stabilising, fixing, and freezing of these practices and knowledge relations, including as part of the mapping or typology that we provide here. One way in which this is very much apparent, is in how the first two versions of this report—based on desk research—are written in English and predominantly include English-language examples of experimental books, as well as books published by presses from the Global North.[2] Our aim for subsequent versions of this report is to continue to reach out to publishing networks and communities in the Global South to ensure more diverse examples from different regions and from languages other than English are included and made visible.

We want to publish this report openly in different versions (what you are reading now is the second version of this section of the report, see here for version 1.0), which will enable us to continue updating it and incorporate new examples and classifications. We hope this can become a resource (or an ExPub Compendium, see section 3 of this report for more on this) that is eventually taken up and maintained by the experimental publishing community, or which becomes a reference or starting point for new mappings and analyses of this field (just as the classifications presented in the literature we have consulted and referenced for this report inform the current typology). By keeping this mapping open, both for updates and further uptake by the community, we hope we can prevent a too stringently fixing-down of the speculative character of these experiments, where instead we want to emphasise that its political nature lies in the book continuing 'to be able to serve ''new ends'' as a medium through which

[2] This is partly due to increased investments in recent years by funders in the Global North in multimodal publishing as well as the tools and infrastructures to support this (e.g. by the Mellon Foundation in the US, see Maxwell, Bordini, and Shamash, 2017).

politics itself can be rethought' (Adema & Hall, 2013; Drucker, 2004).[3] Indeed, experimental publishing can be seen as an attempt at keeping 'open the politics of knowledge and communication in a context in which these are being closed down' (Kember, 2014).

We are aware that by not making the argument for a stable or conclusive taxonomy we are going against the grain of those who argue that (further) solidification and standardisation of forms is necessary to enable experimental and speculative publications to be incorporated into our established measurement, metric, and evaluation systems (Spence, 2018; Walkowski, 2019). However, this is not a one-way direction, and we would rather emphasise the opposite: measurement and evaluation systems will need to adapt and be rethought to accommodate new forms of publication in a continuous manner. One of the underlying aims of experimental publishing has always been to rethink, reimagine, and critique the forms, structures, and systems that underlie our system of scholarly communication and to work towards forms and relations that might better suit our diverse forms of research and support the conversations around it. As Tara McPherson argues, evolving 'more "standardized'' structures and interfaces that will allow us to delineate more stable genres and to scale multimodal scholarship,' should not stand in the way of exploring new modes of scholarship and publishing, where McPherson emphasises the ongoing need for forms of bold experimentation (McPherson, 2010). In this sense we believe space needs to be provided to these forms to actually experiment and intervene (for opacity and disorientation) beyond institutionalising measures that fix these experiments down again.

Situating Experimental Books

Following this line of thinking, instead of defining what makes an experimental book or what constitutes experimental publishing, we would like to position it here in relation to certain practices and contexts instead. For example, what becomes clear when trying to situate experimental book publishing within academia, is that it finds itself (historically) positioned across 3 different, yet interconnected discourses: around the codex format, around digital publishing, and around openness.

The codex format or the printed book continues to play an important role in future imaginaries of the scholarly book. For example, many experiments (as well as classifications of experiments) tend to start off from a binary position, either as a response to, departure from, or enhancement of the printed book. In other words, in debates on the future of the scholarly book, often comparisons are made with the printed book, which scholars continue to perceive as an essential form for long-form scholarship in the humanities (Collins & Milloy, 2016). Experimental works are often valued according to their 'equivalence' to the codex book—whether this is to its form, e.g., print and linear, or to the scholarly practices established around the codex, e.g., single authorship, originality, blind peer review. The codex form then becomes the standard or the benchmark we measure our experiments or enhancements against (instead of valuing them on their own merits). This report does not want to downplay the value of the codex form or what has become the 'standard' fixed and bound book format, which indeed continues to play a crucial role in humanities research and its publishing ecology; nor does this report

[3] As the history of the artist's book shows (and we feel experimental book publications play a similar role in academia), 'it can be used to question, intervene in and disturb existing practices and institutions, and even offer radical, counter-institutional alternatives' (Adema and Hall, 2013).

want to de-emphasise the experimental and political potential of print (Adema & Hall, 2013; Trettien, 2021; Pold & Anderson, 2014; Adema, 2021). What we want to argue for here however is the 'irreducible plurality of academic publishing' (Kivistö & Pihlström, 2015) and a thinking that moves beyond the discourses and relationalities of print and the codex and tries to explore different forms and ways of relating, which is exactly what experimental publishing as we perceive it sets out to do.

It merits highlighting here again that experimental publishing can incorporate any format or medium, and print has proofed to be a very versatile, experimental, and speculative medium throughout its history. However, in the present context, experimental scholarly publishing finds itself situated predominantly in relation to the *digital medium* and the possibilities this offers for the production, dissemination, and consumption of scholarly research. Some even see digital experimental publishing as the outcome of a linear process, i.e., as a development from the printed to the enhanced monograph and from there to interactive digital-only publishing (Elliott, 2015), or as a in transition 'from' analogue 'to' digital formats—which, as Kember has highlighted, is a false dichotomy (Kember, 2014). Yet when it comes to the monograph, Maxwell et al. (Maxwell et al., 2017) and others talk about an 'innovation crisis' (as part of a series of monograph crises), in which the monograph is still stuck in a print paradigm focused on print products—where the journal has been much better in adapting to a digital environment, for example. In addition to that, we need to be wary of the techno-futurist rhetoric that surrounds ideas of 'digital innovation' (Spence, 2018), where narratives of digital innovation tend to focus mainly on strengthening the knowledge economy and often underlie more neoliberal forms of openness.[4] Here the hype of digital innovation and disruption (currently centred mainly around virtual reality, AI, apps, and linked data) can stand in the way of any thorough experimentation with the forms and relationalities of publishing. Especially when a lot of digital publishing, however 'innovative,' still remains a mirroring or remediation of print organisation and processes, and of the codex format. Mrva-Montoya talks about *tradigital books* in this respect—or what in other contexts has been positioned as *postdigital publishing* (Pold & Anderson, 2014; Cramer, 2012; Ludovico, 2012)—where most of the backend production processes are digital, yet the outcome is still a print or codex-based product. As Mrva-Montoya states: 'the majority of scholarly book publishers remain focused on monographs and edited collections, released in multiple formats (print, ePub, and so on), but with linear content refined using traditional editing practices and the design driven by the paradigm of the printed page. We are still effectively dealing with ''print'' books hosted in an online environment' (Mrva-Montoya, 2015). In this respect the digital on its own is not necessarily experimental, especially when in most cases it simply emulates print in appearance and through restricted closed forms of licensing (e.g., DRM). As Maxwell et al. make clear, they 'do not consider the e-book as a significant innovation in monograph publishing' where it is 'effectively an electronic proxy for the printed book' (Maxwell et al., 2017). Notwithstanding these mirroring tendencies, there is a felt need among publishers and authors to further explore the potential of the digital medium and of digital publishing tools to experiment with new formats and alternative workflows for publishing, as well as potentially increased possibilities for interaction with and

[4] As a counterpoint to this various research and publishing efforts that are investigating experimentation as an affirmative speculative practice and critique do so as a means to re-perform our existing scholarly institutions and practices in potentially more ethical and responsible ways (Adema, 2021).

collaboration around research and publications, for example with new forms of review and annotation tools (Bertino & Staines, 2019).

A third context to which we argue experimental publishing should be related is that of open access (OA) publishing and open source software. In many ways OA publishing can be seen as a prerequisite for doing contemporary forms of experimental publishing, which do not bide well by a strict copyright and ownership regime. Bertino and Staines argue for the importance of breaking through proprietary channels to enable human and machine-readable annotations, for example, where openness allows for improved interaction around content (Bertino & Staines, 2019), and similar arguments can be made about other forms of reuse and remix, and forms of community authoring and reviewing. But, as with the digital medium, the open availability of a work doesn't make it experimental or open for further experimentation and reuse (e.g., due to copyright licenses, platform-enclosures, and other technological, social, and cultural barriers). In this respect, as Mrva-Montoya has argued, innovation in OA publishing has mostly happened on the level of business models and distribution:

> 'while the open access publishing model is certainly transformational, it is driven by experimenting with the new business, distribution, and permission models rather than with a new format of scholarly communication practice' (Mrva-Montoya, 2015).

We can see this most clearly in the adoption of OA by commercial and legacy publishers, often using their own proprietary platforms and open licenses (placing restrictions on certain forms of (data) sharing, mining, and reuse). To promote experimental publishing, it is therefore important that the software, platforms, and infrastructures that support publishing are also open (source), not-for-profit, and community-led, as the COPIM project is arguing for.

In this context several open source publishing tools, software infrastructures, and platforms are being developed at the moment to support experimental publishing. Worthington even describes his work with the Hybrid Publishing Coalition—focused on building public open source software infrastructures for publishing to support the free-flow of knowledge—as a form of 'book liberation' (Worthington, 2015). He argues that book liberation is as much a political issue (around the fear of corporate infrastructure enclosure of both content and infrastructure) as a technical one. But beyond openness and open licenses, upkeep and (financial) support is needed to maintain these public infrastructures and promote diversity in the publishing ecosystem. This involves supporting smaller publishers, publishing institutions, projects, local knowledge communities and organisations, by replacing proprietary software with interoperable open source digital workflows—with which, as Worthington states: 'publishers could afford to experiment and innovate' (Worthington, 2015). The same thinking lies behind experimental publishing platforms such as *Vega*, which are focused on accommodating experimental publishing workflows that accommodate *webtexts*. As Ball and Eyman explain, this platform will be 'open source and modular so that editors and publishers can modify their own installations of this free software based on their own editorial needs and desires' (Ball & Eyman, 2015).[5]

[5] Several other platforms and infrastructure projects need to be mentioned here, many of which are discussed in Maxwell et al.'s landscape report of open source publishing tools and technologies *Mind the Gap*. The University of Minnesota Press and CUNY's *Manifold* platform facilitates processual forms of publishing and captures the ongoing discourse around a book. Older and more well-established platforms such as *Omeka* and *Scalar* enable multimodal integration, interactivity, and non-linear

These forms of open access, community-supported, not-for-profit, and open source publishing are all the more important for experimental publications, as these often lack a clear market-appeal. Furthermore, as Ortega argues with respect to the publishing of print-digital hybrids, many experiments are also one-offs and are non-scalable. These kinds of experiments 'persist at the margins of large scale commercial publishing' and fit better in the small, independent not-for-profit landscape, she argues, where beyond market failure (and often reader-resistance), technological developments often outpace upkeep, which highlights the importance of community-led stewardship (Ortega, 2020). Beyond openness, the main focus here is around care, coordination, interoperability, and ecosystem integration, and about stewardship and custodianship (Mars & Medak, 2019). As Maxwell et al. state, 'who will care about these projects?', and how do they develop from projects to infrastructures, to 'a comprehensive, networked environment' (Maxwell et al., 2019). Similar to Worthington, Maxwell et al. stress that beyond openness and open source software being free, robust alternatives to support (experimental) publishing would 'depend greatly on community practices and the integration of various tools into a broader interoperable context' (Maxwell et al., 2019). And, we would add, to support inclusivity and equitability, these forms of care will have to extend to, as Angela Okune states, 'rethinking how scholarly infrastructures can be decolonised and decentralised for greater equity in knowledge production' (Okune, 2019).

Experimental Scholarship and Experimental Books

As outlined above, experimental forms and practices of publishing open up and explore questions around modalities, linearity, workflow, and the relationalities of publishing; they examine established practices that we have often been taking for granted or have been repeating uncritically within conventional forms of publishing—where they have become solidified in standard print- and codex-based publishing forms and practices. This especially also concerns discussions about what constitutes a publication, or at what point scholarship is formally 'published' (the current consensus is that a book is published once it is peer reviewed and published by a reputable press). Given the diversity of forms and formats (e.g., from screen-based works to visualisations and interactive archives and databases) in experimental publishing, and the fact that digital and experimental scholarship is often a communal endeavour that undergoes community review, is often developed openly online, and is not always formally published by a press, it can be hard to distinguish between *scholarship* and *publication*. Conventions around this, which again are often actively questioned in form and practice, are less well established within digital and experimental forms of publishing. This leads to comparisons being made with practices established around the printed codex form (e.g., blind peer review, (copy-)editing, print availability), which are then often perceived as the standard to emulate.[6] Instead, what might be more interesting, is to track how guidelines around evaluating digital and multimodal scholarship and

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content organisation. Other systems, less particularly focused on experimental publishing, such as *Editoria* provide, as Maxwell et al. explain, an editorial and production system for scholarly monographs, where MIT's *PubPub* provides an open source platform to support community publishing (Maxwell et al., 2019).

[6] This, however, downplays conversations on the development of evaluation within the print realm as the book in its print form and the practices around it have always been contested too, and there is no 'natural' state or situation to determine when something is published in a print context either, especially within the humanities (e.g. see the tradition of editorial review in humanities book publishing, and the development of peer review) (Moxham and Fyfe, 2018; Biagioli, 2002).

publications are being established within different fields and amongst different scholarly communities. Guidelines focused on evaluating works on their own merits, in the media they are produced, in an ongoing manner, and including technical, design, computational, and interface elements in their evaluation—including reviews of digital humanities projects, archives, tools, and resources (Anderson & McPherson, 2011; Risam, 2014; Guiliano & Risam, 2019; Nyhan, 2020).

This report does however focus on experimental *publications* (or to be more precise, on experimental books). The importance of a 'publishing function' (without wanting to indicate who should or can fulfil this function) here is that it helps us distinguish between scholarship and publication and can help decide or indicate when something is published—and publishing of course doesn't have to be a one-off occasion, as publications can also be versioned or processual. Having discussions on when we make publishing decisions, and for what reason (e.g., to communicate, ask for feedback, for promotion and career reasons, to claim, to market, to sell) and who makes these decisions (e.g., a publisher or formal publishing entity, an author or group of authors, a scholarly community or field), is something that needs to happen within our fields and scholarly communities. The above sketched uncertainty on how to answer these questions for experimental forms of publishing does not absolve us from making these kinds of decisions, even though much experimental scholarship is focused on breaking down barriers between process and product, formal and informal publications, for example. As Elliott states in this respect:

> 'One of our challenges in discussing the future of publication in the humanities has been in distinguishing between *digital publication* and *digital scholarship*' (Elliott, 2015).

However, again, where Elliott and others formulate—or argue for the formulation of—clear definitions to distinguish both, we don't want to do so here, for the simple reason that this depends on the research itself, and on field-specific contexts and discourses. Fixed definitions don't always make it easier to make these kinds of decisions (e.g., when is something reviewed? By whom and in what way, and to what end?), and might close down these conversations that different scholarly communities will have to have to determine their own (what we hope are contingent and continuously reviewed) understandings around what constitutes a book or a publication.

Naming Conventions

In this report we talk about experimental publishing and experimental books, which is one way of coining a mode of publishing that in other contexts might be called multimodal, screen-based, or interactive publishing. Our preference for using experimental publishing is that is it both a wider and more inclusive term that includes multi-modal, interactive, and screen-based works, while not restricting which media forms or practices are included in experimental forms of publishing. Experimental publishing as a term and practice also broadens out discussion from what these forms of publishing *are* to what they *do*, e. g. experiment, speculate, reimagine, question, critique (established publishing forms and practices). Although we feel experimental publishing functions well as an

overarching term,[7] it again becomes more complicated once we name different types of experimental publications. Experimental publishing happens within a wide-range of fields (digital humanities, digital rhetorics, media studies, e-literature, conceptual poetry, creative writing, and artists' books publishing, etc. have been at the vanguard), often with different established naming-conventions for experimental books (from *technotexts* to *liberature* (Hayles, 2002; Fajfer, 2010)[8]). Naming-conventions are also often again coined in relation or with reference to the printed book or codex format (for example, as an add-on: *e*-books or *digital* monographs, or *enhanced* books), where, as with the categorisations mentioned before, there is a tendency to make these terms more uniform and less ambiguous, or to work towards more stabilised or generally accepted names for specific forms of experimental publishing (Spence, 2018). This research instead argues for a plurality of terms and instead of fixing a corpus of terms to identify different experimental publishing forms, will mention or reference these variously used terms throughout this report and the accompanying typology. We want to highlight a couple of these terms here, because similar to 'experimental publishing' they are more overarching terms, and because they define experimental publishing not in relation to the printed book, but in relation to the web.

One quite widely used term is *networked books*; albeit perhaps slightly dated now, as a concept this was used within the context of the ground-breaking research of the *Institute for the Future of the Book (*If:book). If:book saw Wikipedia as a networked book *par excellence* and described a networked book as open, disaggregated, social, and processed (Vershbow, 2006; White, 2006; Esposito, 2003). Mrva-Montoya defines it as a book that is 'written, edited, and read in a networked environment that emphasizes author–reader interaction' (Mrva-Montoya, 2015). The term 'networked book' was used to describe Wark's versioned or processual book *Gamer Theory* and Fitzpatrick's openly reviewed *Planned Obsolesence,* for example.

Another popular term is *webtexts*, which is predominantly used within the field of digital rhetorics,[9] referring mainly to interactive publications and multi-linear works. Ball and Eyman explain that 'webtexts are multimedia-rich, digital, screen-based texts designed to enact an author's scholarly argument' (Ball & Eyman, 2015). For Ball and Eyman, as we will discuss in the next section, webtexts require a different relation of editors and publishers to a publication, calling for their own workflow to support multimedia designs.

A final term we would like to highlight here is *emergent genres*, used by Tara McPherson to describe the work she has done with the experimental journal *Vectors*, as both 'formally challenging and [work] that explores the boundaries of what might count as scholarly argument' (McPherson, 2010). This echoes the work of media theorist Katherine Hayles, who has argued that materiality is an emergent property, something that cannot be specified in advance and that, as such, is not a pre-given entity (Hayles, 2004). For McPherson—examining the boundaries between creative expression and scholarship—emergent genres 'better take advantage of the affordances of computation,' which includes investigating 'bold

[7] Similarly we prefer using the term 'book' in our typology instead of 'work' or text' or 'publication' (although we will also use these terms on occasion) as 'book' as a concept and practice has been able to incorporate a wide variety of forms, hence we think it will be able to incorporate the more experimental forms this report incorporates too.

[8] Walkowksi lists various concepts used in the period after 2007, from liquid publications to unbound books and transmedia publications (Walkowski 2019, p. 53).

[9] See in this context the experimental journal *Kairos*, the first academic journal to publish multimedia texts.

new forms of experimentation and bookishness' to push scholarly publishing in the humanities further (McPherson, 2010). The open-ended terminology used by McPherson here is one we feel fits well with experimental publishing practices.

Material Agency

If experimental forms of publishing make one thing clear, it is that content and form are entangled (i.e., media forms, workflows, and infrastructures are never 'neutral'). The agency and performativity of our technologies and media formats needs to be taken into consideration when we experiment with new forms of publishing (as they should in a print environment, where they are nonetheless often perceived as 'natural'). As Helms argues with respect to digital scholarly monographs or experimental formats, authors need to pay 'special attention to the eventual form of their work at every stage, from writing a proposal to eventual publication' (Helms, 2018). Nevertheless, there are still those who think that setting up a dichotomy between the monograph as form and content is 'an advantageous strategy when considering the academic book of the future' (O'Sullivan, 2018). As Ball and Eyman make clear though, building on their more than 15 years of experience editing scholarly multimedia: 'you cannot separate form and content—or the written content from its design.' (…) 'This process of removing content runs counter to the purpose of scholarly multimedia in which form and content are inseparable' (Ball & Eyman, 2015). They and others indicate in this respect that separating form from content 'result[s] in a loss of meaning' (Helms, 2018), especially in copy-editing processes. It is important to also highlight media and machinic agency in these processes, where Maxwell et al. outline that platforms such as Omeka, Scalar, and Mukurtu 'are part of the discourse around the nature of the book in an online context' (Maxwell et al., 2019) and Worthington talks about the importance of machinic agency in the publishing workflow:

> 'the reader as receiver or consumer is only one role to consider. (…) real-time collaborative text editors – GDocs, Fidus Writer, Etherpad, Ethertoff – change the skill set of the user, change the interface of the publication from read only to read/write, and so intervene in the intimacy of the act of authoring' (Worthington, 2015).

In this sense the book has never 'merely' been a symbolic form and print never 'only' a carrier of information. Similarly, our critical scholarly practices, developed over the centuries, have inherently been shaped by the media we use to communicate our research, hence they are also not something we can easily 'extract' from our print media to then apply to a digital context, as the digital again changes what these critical practices are or could potentially be.

Reimagining Roles and Relationalities

Related to this, many experimental publications involve a rethinking of how we organise scholarship, its roles, and relationships (e.g., authorship, ownership, the publishing function), highlighting that these processes, workflows, and relationalities are not neutral but have been historically formed and developed as part of the development of the codex format. However, new relationalities do not always have to result in experimental forms or in experimental outputs. Similarly, the production of the printed book has always involved collaborations between various parties and stakeholders and different human and machinic agencies. Yet these processes still mainly revolve around the printed book object, closed

and copyrighted with linear content written by a single author. New roles in a digital workflow don't necessarily change this if the outcome is still based on the printed book format. As Mrva-Montoya argues,

> 'while researchers are working with new tools and technologies, in increasingly collaborative environments, the research outputs still need to be published in a format that complies with the various academic evaluation processes around the world, which typically means a book, a book chapter, a journal article, or a conference paper in a printed or digital format' (Mrva-Montoya, 2015).

This process is set up in a fairly linear way where the development of experimental digital works 'involve far more complex, non-linear, and iterative processes and require a close collaboration from an early stage of conceptual work' (Mrva-Montoya, 2015).

Presses tend to play a different and often much more involved role in developing digital projects than they do in print ones, as do other agencies within our academic institutions (e.g., librarians, technologists, designers). Kral and Worthington in this respect talk about experimental publishing within the post-digital condition 'blurring the distinction between the publishers workflow and the scholars textual creation', which for them also means 'an expansion of the very definition what constitutes a publication' (Kral & Worthington, 2014). This reimagined relationship between authors and publishers was one of the main findings of the ground-breaking Gutenberg-e program, one of the first projects (starting in 1999) exploring how to enable 'enhanced forms of historical scholarship and writing through the use of digital technologies' (Wittenberg, 2009). They quickly found that authors needed more help with envisioning what a digital, enhanced monograph could look like, while presses needed to get a better grip on the complexity of the specific editorial and technical aspects that these forms of publishing need. This 'required a kind of collaboration among authors, editors, and technical staff that is quite different from the traditional publishing process' (Wittenberg, 2009). As Wittenberg argues, the collaboration that was subsequently established, was one of the most interesting and valuable outcomes of the project, resulting in the publication of highly original innovative works, where 'authors and their publishers became active partners in the creation of new models of scholarly communication' (Wittenberg, 2009).

Ball and Eyman have outlined in depth how experimental publishing involves a reconfiguring of the editorial workflow. As they state:

> 'This problem – how multimedia-based scholarship is edited and by whom – has been a perpetual refrain in conversations we have had with journal and press editors moving into multimedia publishing realms' (Ball & Eyman, 2015).

What will increasingly be needed, they explain, are forms of design editing, which 'accommodate[s] evaluation of the rhetorical considerations of a design as a whole while also ensuring a design's accessibility, sustainability, and usability through attention to the underlying technical specifications.' As they state, the kinds of workflows necessary for experimental scholarly publishing generally include both *development* and *production*, which involve models of presses and editors working collaboratively with authors prior to official submission. They explain that

> ‘this makes for a much more recursive composing process for the text, where authors and editors tend to work more closely together to get a webtext ready for submission or publication’ (Ball & Eyman, 2015).

Next to changing relationalities between presses and authors, experimental forms of publishing also often involve changing relations with other scholars and scholarly communities. New forms of collaboration around texts, such as commenting, annotating, and open and collaborative reviewing, are some of the more well-known enhancements currently being experimented with in this respect. Open and community review can even be seen as a necessity with experimental publishing, where many projects develop online first and authors are often easily identifiable or even embedded within publications (i.e., via voice overs and videos). Community review has the potential to counter bias in this respect, where Ball and Eyman conclude that: ‘double-blind or anonymous review of scholarly multimedia is impractical. Peer reviewers will know who the author is’ (Ball & Eyman, 2015).

These collaborations around and even on texts in the case of openly editable or community authored works, are increasingly acknowledged as forms of *distributed authorship*, disrupting the myth of single individual authorship upheld within codex book publishing, and expanding ideas of what counts as authorship on texts. As Hall argues with respect to openly editable wiki-books, for example:

> ‘wiki-communication can enable us to produce a multiplicitous academic and publishing network, one with a far more complex, fluid, antagonistic, distributed, and decentred structure, with a variety of singular and plural, human and non-human actants and agents’ (Hall, 2009).

This also again emphasises the different roles and relationalities that come with multimodal and experimental publishing, where scholars instead of standing at the centre of a work or its development, often work together with ‘designers, developers, editors, and librarians to start new projects, not merely to finish them’ (Maxwell et al., 2017). Maxwell et al. describe Nicholas Bauch’s interactive digital monograph *Enchanting the Desert in this context,* which emerged from a collaboration between Stanford University’s Centre for Spatial and Textual Analysis and Stanford University Press and credits a team of nearly thirty contributors. Maxwell et al. point out that the role of the press here was a different one, more focused on reviewing, credentialing, and branding and less on traditional production and design elements, which were planned within the university (Maxwell et al., 2017). Riva similarly talks about the key authorial role of designers in multimodal works, where solutions on design issues ‘necessarily come from a collaborative effort in which the technologists working on the design and production of the digital monograph have a key “authorial” role’ (Riva, 2017), and Elliott emphasises that digital scholarship centres within universities (and we could add libraries here too) play important roles in enabling experimental publishing to thrive (Elliott, 2015).

What is interesting is that Maxwell et al., as well as others, emphasise that, although its role is fluctuating in experimental publishing, the university press’s position remains bedrock,

> ‘its centrality seems unquestioned. No matter how scholarly publishing changes – whether because of digital scholarship, open access, front-end funding, iterative publications, mass collaboration, or mass consolidation – there is an expectation that the university press will be there’ (Maxwell et al., 2017).

Riva agrees that university presses will continue to play a crucial role, but if they want to continue to do so 'they have to take this partnership with scholars and libraries and these experiments in innovation seriously and not retreat into a "business as usual" kind of short-term thinking' (Riva, 2017). In this respect the reimagined monograph, as Humphreys et al. argue 'will not be built in a single step or by a single organization' (Humphreys et al., 2018). Collaboration between libraries, publishers, scholars, scholarly societies, developers, and technology providers will be important to support experimental publishing. But what remains clear from these changing relationalities, is that what is central here is—again—*care*, or, as Maxwell et al. state 'communities of people who care—either as developers, supporters, or as users' (Maxwell et al., 2019). Extending and distributing care to multiple groups and institution might be one way to keep experimental projects alive, developing projects into networked environments cared for by communities. As Maxwell et al. make clear, the difference here between for-profit market driven models and community-led models, is that the former look for control of workflows and products, where for not-for-profits stewardship is the central value (Maxwell et al., 2019). One of the benefits of open source development is that many of the software communities, platforms, and digital tool developers involved in supporting experimentation around books, also see themselves as inherently open to collaboration and to forming networks. As Worthington argues with respect to the Hybrid Publishing Group, for example:

> 'It is important to emphasize is that the HPC is not a fixed and finalised group and we are only at the beginning of forming the network. We want to invite more people to join. The plan is for long term collaboration with a network of stakeholders to support Open Source infrastructures for transmedia, multi-format, scholarly publishing' (Worthington, 2015).

In this sense for experimental publishing to be taken up more widely, this is not only an issue of tools and technologies, or about editorial innovation, but, as one of the Gutenberg-e authors wrote, a wider 'socio-professional' issue, where these new forms of collaboration are 'not only a historical innovation but also an important statement of academic values and ethos' (Wittenberg, 2009).

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PART 2: A TYPOLOGY OF EXPERIMENTAL BOOKS

by Janneke Adema, Tobias Steiner, Simon Bowie, and Marcell Mars

This typology provides an overview of different types of experimental academic books. It outlines the experimental forms, formats, and relationalities authors and publishers are experimenting with as part of their long-form research and publishing activities. As explained in the previous part of this report, this typology does not aim to be a fixed classification, it is meant to function as a resource for scholars, publishers, and the larger research community that can be updated and can be added to. Our aim with this typology is to provide more information about the manifold forms and shapes scholarly books currently come in beyond the standard codex format, to inspire others to experiment with alternative models, materialities, and methods for book creation and distribution. Through this typology—and especially through the examples listed here—we also want to promote and highlight some of the exceptionally high quality and diverse work that is taking place in the realm of (post)digital scholarship, as well as the possibilities for experimentation digital tools and technologies offer for the research and publishing process.

This typology is a work in progress and will be updated with new examples as part of the different versions this report will be released in. What you are reading now is the second version of this typology (see here for version 1.0). This typology will next be developed into an online resource or Compendium for and maintained by the scholarly community (for more information about the further development of this Compendium see part 3 of this report). As explained previously, most of the examples listed here are in English and published in the US, the UK, and Europe. We hope to add more examples of languages other than English and from a wider array of regions in future versions. If anyone reading this has experimental books they would like to see included, please add them in the comments on the PubPub version or contact this report's authors and we will see if we can add them to a future version.

The examples of books listed underneath have been chosen because we feel they illustrate well the different types of experimental books identified in this report. However, many examples listed underneath straddle several categories—i.e., the categories are not exclusive. Finally, although we have categorised the books listed underneath as, for instance, a versioned book or a hybrid book, this doesn't necessarily mean the authors or contributors to the books would similarly place them within these categories or describe them as such. As the examples listed underneath are often representations of complex, multi-compound, and collaborative projects, instead of providing our own descriptions of the books, we have chosen to source the descriptions provided underneath from project websites and publishers websites, among others.

Computational Books

Books that include or incorporate code as part of their critical content or that execute or run code as part of their knowledge production or publication process.[10]

[10] For an updated and more detailed discussion of Computational Book Publishing, see the Computational Book Publishing section that is part of the 3rd part of this report on Technical Workflows.

Cox, Geoff and Soon, Winnie (2021) Aesthetic Programming: A Handbook of Software Studies [online] Open Humanites Press. http://www.openhumanitiespress.org/books/titles/aesthetic-programming/

> *Aesthetic Programming* explores the technical as well as cultural imaginaries of programming from its insides. It follows the principle that the growing importance of software requires a new kind of cultural thinking — and curriculum — that can account for, and with which to better understand the politics and aesthetics of algorithmic procedures, data processing and abstraction. It takes a particular interest in power relations that are relatively under-acknowledged in technical subjects, concerning class and capitalism, gender and sexuality, as well as race and the legacies of colonialism. This is not only related to the politics of representation but also nonrepresentation: how power differentials are implicit in code in terms of binary logic, hierarchies, naming of the attributes, and how particular worldviews are reinforced and perpetuated through computation. Using p5.js, it introduces and demonstrates the reflexive practice of *aesthetic programming*, engaging with learning to program as a way to understand and question existing technological objects and paradigms, and to explore the potential for reprogramming wider eco-socio-technical systems. The book itself follows this approach, and is offered as a computational object open to modification and reversioning.
>
> *Aesthetic Programming* maintains a commitment to the spirit of cooperation and collaboration central to FLOSS, enacted not only through the way the code contained within is shared and made accessible, but in the design and publication of the book itself as a 'dynamic object.' (…) The role of the design agency Open-Source Publishing (OSP) in the design of the book enacts, extends, and plays with these conceptual issues. The book was collaboratively written and formatted through code (Markdown), and managed using the version-control system Git—and indeed the authors use the word 'Git' to open up a bigger discussion about the problematic terminologies embedded in programming

Sources: https://www.aesthetic-programming.net, and Young, 2021.

Reviews/Forks: Marino, 2021, and Marino & Ciston, 2021.

The Turing Way Community, Becky Arnold, Louise Bowler, Sarah Gibson, Patricia Herterich, Rosie Higman, … Kirstie Whitaker. (2019, March 25). The Turing Way: A Handbook for Reproducible Data Science (Version v0.0.4). Zenodo. http://doi.org/10.5281/zenodo.3233986

> *The Turing Way* is an open source community-driven guide to reproducible, ethical, inclusive and collaborative data science. Its goal is to provide all the information that data scientists in academia, industry, government and the third sector need at the start of their projects to ensure that they are easy to reproduce and reuse at the end. The book started as a guide for reproducibility, covering version control, testing, and continuous integration. However, technical skills are just one aspect of making data science research "open for all." In February 2020, *The Turing Way* expanded to a series of books covering reproducible research, project design, communication, collaboration, and ethical research. This project is openly developed and any and all questions, comments and recommendations are welcome at our github repository. The book is collaboratively written and open from the start. To make this project truly accessible and useful for everyone, we invite you to contribute your skills and bring your perspectives into this project. To join this community, please read our contribution

guidelines and ways to get in touch. More information about the community and the project is available in the Community Handbook. We look forward to expanding and building *The Turing Way* together.

Source: The Turing Way Community, 2019.

Enhanced Books

Books in standard print or PDF codex format that have been enriched with additional information, including open, online available data sets, resources, and other multimodal and interactive content (e.g., audio and video). Also: enriched publications, augmented books.

Hobson, M., Tunstall, K. E., Warman, C., & Duc, P. (2016). Denis Diderot 'Rameau's Nephew' – 'Le Neveu de Rameau': A Multi-Media Bilingual Edition (P. Duc, Trans.). Open Book Publishers. https://doi.org/10.11647/OBP.0098

> Incorporates specially-recorded musical pieces into the body of the text, offering a sensory and scholarly evocation of Diderot's work for a general audience. See here, for instance. Probably completed in 1772-73, Denis Diderot's *Rameau's Nephew* fascinated Goethe, Hegel, Engels and Freud in turn, achieving a literary-philosophical status that no other work by Diderot shares. This interactive, multi-media and bilingual edition offers a brand new translation of Diderot's famous dialogue, and it also gives the reader much more. Portraits and biographies of the numerous individuals mentioned in the text, from minor actresses to senior government officials, enable the reader to see the people Diderot describes, and provide a window onto the complex social and political context that forms the backdrop to the dialogue. Links to musical pieces specially selected by Pascal Duc and performed by students of the Conservatoire national supérieur de musique et de danse de Paris, illuminate the wider musical context of the work, enlarging it far beyond its now widely understood relation to opéra comique.

Source: Hobson et al., 2016, and https://www.openbookpublishers.com/section/108/1.

Paim, J. S. (2015). O que é o SUS: E-book interativo. Editora Fiocruz. http://www.livrosinterativoseditora.fiocruz.br/sus/

> A luta pelo direito à saúde e pela consolidação do Sistema Único de Saúde (SUS) tem se expressado a partir da articulação de trabalhadores das áreas da saúde, pesquisadores e militantes dos movimentos sociais nas últimas décadas. O livro *O Que É o SUS* - um dos títulos mais procurados da Editora Fiocruz, já tendo sido reimpresso cinco vezes - busca esclarecer o que é, o que não é, o que faz, o que deve fazer e o que pode fazer o SUS. Pela importância do tema e da obra, *O Que É o SUS* foi selecionado para se transformar no primeiro *e-book* interativo da Editora Fiocruz, no âmbito do primeiro edital da Faperj especialmente dedicado às editoras universitárias. O objetivo do projeto não era mudar o suporte do papel para a tela, mas oferecer uma nova experiência de leitura, onde vídeos, áudios, galerias de fotos, infográficos e outros recursos ora complementassem, ora substituíssem partes do texto original, criando uma nova textualidade eletrônica. O resultado é fruto de uma construção coletiva e, antes, do consentimento do autor, o professor da Ufba Jairnilson Silva Paim, que,

generosamente, seguiu "o exemplo de João Ubaldo Ribeiro de não interferir na transformação de seus livros em filmes, novelas ou mini-séries, pois, além de outras linguagens, na realidade, tais iniciativas expressam novas criações", nas palavras do próprio sanitarista. Uma nova criação que, assim como o livro de 2009, busca contribuir para a consolidação, o fortalecimento e a expansão do SUS.

Source: Paim, 2015.

Babini, D., & Rovelli, L. (2020). Tendencias recientes en las políticas científicas de ciencia abierta y acceso abierto en Iberoamérica. CLACSO : Fundación Carolina.

El propósito general del informe busca reconstruir y analizar el estado de las investigaciones y las políticas científicas en acceso abierto, datos abiertos de investigación y ciencia abierta en Iberoamérica e indagar su incidencia en la evaluación de trayectorias investigativas, publicaciones científicas e indicadores de impacto. Con ello, CLACSO y la Fundación Carolina persiguen contribuir desde el desarrollo de conocimientos locales y situados al tratamiento y posible resolución de los grandes desafíos planteados por los Objetivos de Desarrollo Sostenible de la Agenda 2030.

This new book is the first book in CLACSO´s interoperable (OAI-PMH) digital repository http://biblioteca.clacso.edu.ar/ with interactive links in footnotes, and interactive links to open access references in the bibliography.

Source: Babini & Rovelli, 2020, and private email conversation.

Jenkins, H., Shresthova, S., Gamber-Thompson, L., Kligler-Vilenchik, N., & Zimmerman, A. (2016). By Any Media Necessary: The New Youth Activism. NYU Press. http://hdl.handle.net/2333.1/brv15j8p

Open Square is NYU Press's platform for publishing and reading open access books. A browser-based reading platform, Open Square enables us to increase the impact of scholarly work by making it freely available in a digital format and to experiment with new ways of presenting scholarship and adding enhanced content to traditionally published books. This site uses Readium, an open source software package for handling EPUB documents. *By Any Media Necessary* offers a profoundly different picture of contemporary American youth. Young men and women are tapping into the potential of new forms of communication such as social media platforms, spreadable videos and memes, remixing the language of popular culture, and seeking to bring about political change—by any media necessary.

Source: NYU Press, n.d.-a and NYU Press, n.d.-b.

Ganahl, S. (2022). Campus Medius: Digital Mapping in Cultural and Media Studies. https://www.transcript-publishing.com/978-3-8376-5601-5/campus-medius-digital-mapping-in-cultural-and-media-studies/ and https://campusmedius.net/

Campus Medius explores and expands the possibilities of digital cartography in cultural and media studies. Simon Ganahl documents the development of the project from a historical case study to a mapping platform. The first section presents the initial version (1.0/2014) of campusmedius.net, an interactive map with a timeline displaying fifteen events within twenty-

four hours in Vienna on the weekend of May 13 and 14, 1933. The second part discusses the current version (2.0/2021) of the project that additionally focuses on the main event of this exemplary time-space or chronotope: an Austrofascist "Turks Deliverance Celebration" (Türkenbefreiungsfeier) in the gardens of Schönbrunn Palace, which is imparted from a bird's-eye perspective, panoramically, and in street view by five mediators each. The following section deals with the technological infrastructure and the data model of Campus Medius, which operationalizes the theoretical concepts of the dispositif and the actor-network. In conclusion, we outline our plans to establish a digital platform for describing and visualizing media experiences in everyday life.

Source: Ganahl, 2022, and https://campusmedius.net/overview

Phone & Spear: A yuta anthropology. (2019). https://www.gold.ac.uk/goldsmiths-press/publications/phone-and-spear-/ and https://phone-and-spear.pubpub.org/

> Building on a ten-year collaboration by the community-based arts collective Miyarrka Media, the project is an experiment in the anthropology of co-creation. It is a multivoiced portrait of an Indigenous society using mobile phones inventively to affirm connections to kin and country amid the difficult and often devastating circumstances of contemporary remote Aboriginal life. But this is not simply a book about Aboriginal art, mobile phones, and social renewal. If old anthropology understood its task as revealing one world to another, *yuta* anthropology is concerned with bringing different worlds into relationship. Following Yolngu social aesthetics—or what Miyarrka Media translate as "the law of feeling"—the book is a relational technology in its own right: an object that combines colour, pattern, and story to bring once distant worlds into new sensuously mediated connections.
>
> Source: *Phone & Spear: A Yuta Anthropology*, 2019

Boluk, S., & LeMieux, P. (2017). Metagaming: Playing, competing, spectating, cheating, trading, making, and breaking videogames. University of Minnesota Press. https://manifold.umn.edu/projects/metagaming

> Boluk and LeMieux shine a hundred spotlights on play's diversity in, on, around, between, through, and without video games. Their wildly eclectic book careens from competitive e-sports and video game spectatorship to hacking, modding, speedrunning, experimenting, and critiquing video games—all valid ways of engaging with the medium that tend to fall outside analyses which see these activities as merely the metagame.

Source: Boluk & LeMieux, 2017.

Experiments in Authorship

Books that are exploring different forms of authorship, i.e., collaborative, distributed, communal, machinic, or anonymous, often as a critique of the ways in which authorship currently functions within academia.

Uncertain Commons. (2013). Speculate This! Duke University Press. https://www.dukeupress.edu/Speculate-This/ and https://speculatethis.pressbooks.com/

> As a collaborative work coauthored by a group of anonymous scholars, *Speculate This*! argues for and embodies affirmative speculation. A short, timely manifesto critiquing predatory modes of financial speculation that seek to minimize uncertainty and risk, while advocating speculative practices that embrace uncertainty, spur radical change, and enable alternative futures. The uncertain commons is a group of scholars, mediaphiles, and activists who explore the possibilities of collaborative intellectual labor. They remain anonymous as a challenge to the current norms of evaluating, commodifying, and institutionalizing intellectual labor. Members of the group represent a diverse set of nationalities, backgrounds, and institutional affiliations, and they participate in a range of disciplines, including cultural studies, English, media studies, philosophy, Middle Eastern studies, and South Asian studies.

Source: uncertain commons, 2013.

The Multigraph Collective. (2018). Interacting with Print: Elements of Reading in the Era of Print Saturation. University of Chicago Press. https://doi.org/10.7208/chicago/9780226469287.001.0001

> The Multigraph Collective is a team of twenty-two scholars at sixteen universities in Canada, the US, and the UK. Its members are Mark Algee-Hewitt, Angela Borchert, David Brewer, Thora Brylowe, Julia Carlson, Brian Cowan, Susan Dalton, Marie-Claude Felton, Michael Gamer, Paul Keen, Michelle Levy, Michael Macovski, Nicholas Mason, Nikola von Merveldt, Tom Mole, Andrew Piper, Dahlia Porter, Jonathan Sachs, Diana Solomon, Andrew Stauffer, Richard Taws, and Chad Wellmon. As the larger group came together, Piper had the idea of disseminating the work through an ambitious collaboration: a jointly authored book that would draw on everyone's research interests, with writing and editing undertaken electronically, via wiki software. Anyone would be able to write or revise, insert or delete, expound or qualify. The book wouldn't have one author but 22, each taking responsibility for all of its contents: instead of a monograph, it would be a "multigraph." (The word wasn't Piper's originally, but it fit.) And so a massive collaborative enterprise—which came to be called the Multigraph Collective—was born.

Source: University of Chicago Press, 2017, and Allison Miller, 2018.

Anon Collective (2021) Book of Anonymity. punctum books. https://punctumbooks.com/titles/book-of-anonymity

> Anonymity is highly contested, marking the limits of civil liberties and legality. Digital technologies of communication, identification, and surveillance put anonymity to the test. They challenge how anonymity can be achieved, and dismantled. Everyday digital practices and claims for transparency shape the ways in which anonymity is desired, done, and undone. *The Book of Anonymity* includes contributions by artists, anthropologists, sociologists, media scholars, and art historians. It features ethnographic research, conceptual work, and artistic practices conducted in France, Germany, India, Iran, Switzerland, the UK, and the US. From police to hacking cultures, from Bitcoin to sperm donation, from Yik-Yak to Amazon and IKEA,

from DNA to Big Data — thirty essays address how the reconfiguration of anonymity transforms our concepts of privacy, property, self, kin, addiction, currency, and labor.

The *Book of Anonymity* is written in the tradition of author-less texts. Editing and contributing anonymously constitute experiments in anonymity that speak to the aggressive valuation regimes shaping contemporary artistic and academic knowledge productions alike. This is not to discount the usefulness of attribution, but to trouble the ease with which labour is still dissected, measured and attached to the nexus of person, value and knowledge. To name, one contribution insists is to "define people, things, as individuals, to mark them, hold them, hierarchize them, to press them into service and turn them into value." Another contribution advocates and questions if an ethics of anonymity can engender the kind of care that individualised practices arguably strive for yet undermine. Not all contributions speak to such concerns directly but all consider what is at stake in the im/possibilities of anonymous expression, at a time of thick digital traces. Editing and contributing anonymously thus is a practical commitment to one of the red threads that criss-cross the kaleidoscopic accounts presented in this book.

Source: Anon Collective, 2021.

Experimental Design Books

Books in which the design performs a central part of the argument.

Hayles, N. K., Burdick, A., Loyer, E., Lunenfeld, P. (2002). Writing machines. MIT Press. https://mitpress.mit.edu/sites/default/files/titles/content/mediawork/titles/writing/writing_book.html

Tracing a journey from the 1950s through the 1990s, N. Katherine Hayles uses the autobiographical persona of Kaye to explore how literature has transformed itself from inscriptions rendered as the flat durable marks of print to the dynamic images of CRT screens, from verbal texts to the diverse sensory modalities of multimedia works, from books to technotexts. The primary significance of Writing Machines, and any discussion of it, resides in the relationship between its material design and its argument for material criticism. The book's design not only embodies, but enables its argument. Form and content, mind and body, are not only inseparable, but are interdependent.

Anne Burdick:

I had always meant for the book design to be integral to the intellectual argument: it should not only interpret the argument, but should actively interrogate its terms. As a result, structures that are a component of the writing strategy became inseparable from the design strategy, and vice versa. The three most significant manifestations of this are in the typefaces that identify different voices, the representational and navigational elements that emphasize the book's status as a book, and the sampled quotations–with their original materiality somewhat intact–that interweave with Kate's writing.

Source: Pressman, 2002, and https://mitpress.mit.edu/sites/default/files/titles/content/mediawork/titles/writing/writing_book.html#
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Miller, P. D., COMA, & Hally, P. (2004). Rhythm Science (1st ed.). The MIT Press. https://mitpress.mit.edu/sites/default/files/titles/content/mediawork/titles/rhythm/rhythm_book.html

> Miller's textual provocations are designed for maximum visual and tactile seduction by the international studio COMA (Cornelia Blatter and Marcel Hermans). They sustain the book's motifs of recontextualizing and relayering, texts and images bleed through from page to page, creating what amount to 2.5 dimensional vectors. From its remarkable velvet flesh cover, to the die cut hole through the center of the book, which reveals the colored nub holding in place the included audio CD, *Rhythm Science: Excerpts and Allegories from the Sub Rosa Archives*, this pamphlet truly lives up to the Mediawork Pamphlets claim to be "theoretical fetish objects… 'zines for grown-ups."

Source: P. D. Miller et al., 2004.

McLuhan, M., Fiore, Q., & Agel, J. (1967). The Medium is The Massage. Gingko Press. http://archive.org/details/pdfy-vNiFct6b-L5ucJEa

> Fiore described *The Medium is the Massage* as having 'no "original" manuscript. The idea was to select some of McLuhan's ideas from previous publications and present them in isolated 'patches' on individual spreads with accompanying artwork.' The major sources for the book were McLuhan's 1962 *Gutenberg Galaxy* and 1964 *Understanding Media*, the two texts that were gaining him notoriety for their aphoristic style and unqualified assertions. The most striking aspect of *The Medium is the Massage*, however, is the way it explores the space of the book – its literal scale and sequential unfolding – as part of its content. For instance, the full-bleed images that introduce an idea on one spread are repeated on the following spread at postage stamp size. This structure, repeated across several pages, encourages the images to be read differently according to their scale and juxtaposition to other images and words. Fiore's layouts destabilise the traditional hierarchy of image and caption, text and illustration. Elsewhere, Fiore highlights the literal dimension of the book with a spread showing the thumbs of the reader holding the pages open: a photographic doubling of the reader's own hands.

Source: Abbott Miller et al., 1993.

Tsing, A.L., Deger, J., Keleman Saxena, A., and Zhou, F. (eds.) (2021) Feral Atlas: The More-Than-Human Anthropocene. Stanford University Press. http://feralatlas.org

> *Feral Atlas* invites you to explore the ecological worlds created when nonhuman entities become tangled up with human infrastructure projects. Seventy-nine field reports from scientists, humanists, and artists show you how to recognize "feral" ecologies, that is, ecologies that have been encouraged by human-built infrastructures, but which have developed and spread beyond human control. These infrastructural effects, *Feral Atlas* argues,

are the Anthropocene. Playful, political, and insistently attuned to more-than-human histories, *Feral Atlas* does more than catalog sites of imperial and industrial ruin. Stretching conventional notions of maps and mapping, it draws on the relational potential of the digital to offer new ways of analyzing—and apprehending—the Anthropocene; while acknowledging danger, it demonstrates how in situ observation and transdisciplinary collaboration can cultivate vital forms of recognition and response to the urgent environmental challenges of our times.

DESIGNED AND BUILT BY - Lili Carr (Map Director); School: Andrew Herzog and Nicky Tesla, with Emma Rae Bruml Norton, Lukas Eigler-Harding, Rahul Shinde; Art Camp: Santiago Carrasquila, Jos Diaz Contreras, Eugene Lee, Ningfeng Zhao, Heewon Kim; Victoria Baskin Coffey (Visual Editor); Jovan Maud (Copy and Digital Editor); Gabby Miller (Wrangler).

Source: Tsing et al., 2020

Experiments in Reviewing

Books which have undergone online, open, community, or crowd-sourced forms of review, either during the research or publication phase or post-publication.

Fitzpatrick, K. (2011). Planned obsolescence: Publishing, technology, and the future of the academy. New York University Press. https://mcpress.media-commons.org/plannedobsolescence/

Planned Obsolescence was openly reviewed using CommentPress, a blog-based publishing engine developed by the Institute for the Future of the Book, which seeks to promote dialogue within and around long-form texts in two primary ways: first, by structuring those texts around chunks that can be interlinked in linear and non-linear fashions, and that can take advantage of the ability to link to (and receive links from) other such texts in the network; and second, by allowing those chunks of texts to be commented and discussed at various levels of granularity, ranging from the document as a whole, to the page, all the way down to the paragraph. More recently, Fitzpatrick has published a new book, *Generous Thinking: The University and the Public Good*, which she has also developed in an open way by a process of community review, still using the CommentPress plugin, but now on the Humanities Commons platform: http://generousthinking.hcommons.org/

Source: "Commentpress," 2009.

Yates-Doerr, E., & Labuski, C. (2017). The Ethnographic Case. Mattering Press. https://doi.org/10.28938/995527744 and https://www.matteringpress.org/books/the-ethnographic-case

The Ethnographic Case is an experimental, online, Open Access book, that invites readers to interact with it in a process of post-publication peer review (using the CommentPress plugin). The book challenges a widespread academic inclination to treat concepts as immutable mobiles. The contributions to this volume develop "ethnographic casing" as a technique of attending to heterogeneities in systems of thought.

Source: Yates-Doerr & Labuski, 2017, and https://www.matteringpress.org/books/the-ethnographic-case

Language Science Press post-publication community-review process

> Once the book is published, we make it available on our website, but also on a number of other venues (GoogleBooks, Github, Zenodo, OAPEN, PaperHive). On PaperHive, it is possible to leave comments on the published version of books. There are two main use cases for this: Errata and discussion points. The real goal of PaperHive, however, is to stimulate discussion about a book and to provide additional perspectives. (...) by making preliminary versions available for comment on a platform like PaperHive in a structured way, and by keeping a history of the different interlinked versions, the format "book" can actually be very well integrated into an electronic and collaborative publishing landscape.
>
> Today, we can showcase docLoop, which allows us to transform the community comments into todo lists on GitHub, closing the loop from author to reader and back from the reader to the author. Our traditional workflow requires that authors go through the PaperHive document and take care of the comments as they go along, updating their manuscript. With docLoop, however, we can now harvest all those comments and put them in a nice GitHub issue list. Readers do not have to learn anything about git, though. They can simply use the very user-friendly PaperHive web interface to leave their feedback. This feedback is then converted into structured issues for further processing.

Sources: Nordhoff, 2017, and Nordhoff, 2020.

Database books

Books where a database of resources forms the central element (i.e., not as an enhancement to a text-based book) around which the book is formed. These can be non-linear, with multiple access points, or can incorporate updates or versioning, akin to a 'living archive'. Considers the question when is something a digital archive, and when is it a publication, or a book?

Wernimont, J., Kim, D. J., Schonberg, S., Borsuk, A., Schuster, B., Blackmore, H., & Gosart (Popova), U. (2018). Performing Archive: Curtis + "the vanishing race". Scalar. https://scalar.usc.edu/works/performingarchive/index

> Created as a pilot project for the Claremont Center for Digital Humanities, "Performing Archive: Edward S. Curtis + 'the vanishing race'" aggregates media from several different collections based on the early 20th century ethnographic and photographic work of Edward S. Curtis. At its core it is an aggregation of several existing archival visual, material, and sonic collections based on the work of Curtis, an early 20th century photographer. In its gathering of materials from multiple sources, "Performing Archive" acts both as a meta-archive in its own right, and as an interpretive layer that examines Curtis' materials through essays written by a variety of contributors. The project is designed to expand over time with additional contributions from students, faculty, and the public. "Performing Archive" is the first project to make use of an experimental new reader interface for Scalar that's designed to improve readability, navigation, and media presentation. In addition to aggregating nearly 2,500 items

related to Curtis and his ethnographic and photographic work with western American and Canadian tribes, our "archive" also brings together a number of new scholarly works designed to facilitate teaching with Curtis' work. The issues of intellectual and cultural property rights raised by the publication of the Curtis images (both historically and now) are worth thinking about in broad terms as efforts within Digital Humanities, Public Humanities, and Museum Studies continues to engage in efforts to increase access to archives and collections that have been marginalized, excluded, or silenced.

Sources: "Introducing Performing Archive: Edward S. Curtis + 'the Vanishing Race'," 2013; and "Introduction," n.d.

Hybrid books

Hybrid books exists in a plurality of formats or media, both digital and non-digital, online and offline. Often a print version for sale supports the other formats. Also: post-digital books, transmedia books, binding media.

Zylinska, J., Kuc, K., Shaw, J., Varney, R., & Wamposzyc, M. (2015). Photomediations: An Open Book. http://photomediationsopenbook.net/

Photomediations: An Open Book was an experiment in open and hybrid publishing, as well as a celebration of the book as living object. As part of its basic premise, it redesigned a coffee-table photography book as an online experience. Photomediations adopted a process- and time-based approach to images by tracing the flows of data that produce photographic objects. This stance was reflected in the set-up of this open and hybrid book. Photomediations used open reusable image content, drawn from various open online repositories such as Europeana and Flickr Commons. In this way, the book showcased the possibility of the creative reuse of image-based digital resources. *Photomediations: An Open Book* consisted of a comprehensive introduction and four commissioned chapters on light, movement, hybridity and networks. The book also contained three open chapters, the content of which developed and grew over time, most notably into a collection of twenty scholarly and curatorial essays about the idea of photomediations, called *Photomediations: A Reader, which was published as a standalone physical book by Open Humanities Press*. *Photomediations: An Open Book*'s final chapter consisted of an offline and online exhibition. The offline remixable flatpack exhibition, exhibited at Hamburger Bahnhof in Berlin, featured the work of nineteen international artists who responded to the project's open call-to-action to liberate the image in the twenty-first century. The Photomediations project also encompassed an online Educational Space. It included a downloadable brochure titled A Guide To Open And Hybrid Publishing, which explained how anyone can undertake a project of this kind for themselves, a pack of Creative Jam Cards, based on four sets of creative tasks, that could be remixed to incorporate further questions and interventions, and a 'remix generator', which was designed to provide learners with an introduction to the basic processes and concepts of gathering and remixing open images, by offering a pool of open tasks and content.

Sources: Zylinska, 2015, and *A Guide To Open And Hybrid Publishing*, 2014, and Kuc & Zylinska, 2016.

Interactive Books

Books that require reader participation or interaction, or that offer navigational possibilities to readers. Also: hypertext, webtext, or Interactive Scholarly Work

Bauch, N. (2016). Enchanting the Desert: A Pattern Language for the Production of Space. http://www.enchantingthedesert.com/home/

> *Enchanting the Desert* is the geographical revival of Henry Peabody's travelling Grand Canyon slide-show made in the early part of the twentieth century. It helped set a template for how we see the Grand Canyon today. Using an established medium—the website application—*Enchanting the Desert* introduces a genre of scholarship—the born-digital interactive monograph. The medium allows for technical leaps impossible in a print publication. The genre takes advantage of these leaps by performing spatial narrative in an inventive new way. *Enchanting the Desert* contributes to an aesthetic for the production of cultural space. It is a conversation between two modes of visual geographic representation: the pictorial and the cartographic. Holding these two in concert is to explore between emotion and analysis.

Source: Bauch, 2016.

Kolb, D. (1994). Socrates in the labyrinth: Hypertext, Argument, Philosophy. Eastgate Systems. http://www.eastgate.com/catalog/Socrates.html

> *Socrates in the Labyrinth* is a wide-ranging exploration of the relationships between hypertext, thought, and argument. Does hypertext present alternatives to the logical structures of if-then, claim and support? Is hypertext a mere expository tool, that cannot alter the essence of discussion and proof? Or is hypertext essentially unsuited to rigorous argument? Kolb's discussion is a nuanced, creative approach to these and other questions. Kolb points up the history of nonlinearity in philosophical work, from the Socratic dialogues through Hegel, and the variety of forms that philosophical discussion can take. Kolb's discussion -- and the structures of Socrates itself -- show that hypertext is not only a "super-encyclopedia" that leaves the essence of argument unchanged. But his keen understanding of both hypertext and postmodernism also shows that the relation between hypertext and "the end of the text" is more complex than is sometimes claimed. *Socrates in the Labyrinth* embodies several hypertext structures showing possibilities for writing and thought in the new medium. *Socrates in the Labyrinth* is one of the first works of hypertext non-fiction to examine and exploit the techniques of hypertext rhetoric discovered in the development of serious hypertext fiction. *Socrates in the Labyrinth* was created using Storyspace.

Source: Kolb, 1994.

Greco, D. (1995). Cyborg: Engineering the body electric. Eastgate Systems. http://www.eastgate.com/catalog/Cyborg.html

> Diane Greco explores the significance of the cyborg in 20th century writing. from Thomas Pynchon and William Gibson to Haraway and Derrida. The cyborg is more than just an

interesting fiction; Cyborg: Engineering The Body Electric explores cyborg's impact on political action and personal identity.

Source: Greco, 1995.

Paul, E., McKenzie, D., Raibmon, P., & Johnson, H. (2019). As I Remember It: Teachings (ʔəms tɑʔɑw) from the Life of a Sliammon Elder. http://publications.ravenspacepublishing.org/as-i-remember-it/index

With this immersive online publication adapted from *Written as I Remember It*, readers can learn about the Sliammon language, listen to Elsie tell her stories, and watch short animations of legends and events. They can navigate by theme – Territory, Colonialism, Community, Wellness – explore the contents through interactive maps, browse the audio and visual galleries, or make use of the instructional materials designed for teachers and students.

This media-rich, multi-path book offers a rare glimpse into the life of a Coast Salish woman and the history and lifeways of her people. It stands as a model for collaborative research and digital storytelling. Accessible and engaging, it will be a welcome resource for anyone learning about the legacy of colonialism in Canada, the resilience of First Nations people, the possibilities of reconciliation, and the importance of sharing and listening.

Source: Paul et al., 2019.

Living Books

Books that are published on a Read/Write basis open to ongoing collaborative processes of writing, editing, updating, remixing and commenting by readers. These books continue to evolve over time as content is added. Also: liquid books, wiki-books.

Living Books About Life. Open Humanities Press. http://www.livingbooksaboutlife.org/

By creating twenty one 'living books about life' in just seven months, the series represents an exciting new model for publishing, in a sustainable, low-cost manner, many more such books in the future. These books can be freely shared with other academic and non-academic institutions and individuals. Taken together, they constitute an engaging interdisciplinary resource for researching and teaching relevant science issues across the humanities, a resource that is capable of enhancing the intellectual and pedagogic experience of working with open access materials. All the books in the series are themselves 'living', in the sense that they are open to ongoing collaborative processes of writing, editing, updating, remixing and commenting by readers. As well as repackaging open access science research -- along with interactive maps, visualisations, podcasts and audio-visual material -- into a series of books, *Living Books About Life* is thus engaged in rethinking 'the book' itself as a living, collaborative endeavour in the age of open science, open education, open data and e-book readers such as Kindle and the iPad.

Source: "Liquid/Living Books," n.d.

Méndez Cota, G., Torres, L. E., Toxqui, M. & Arziniaga, Á. (2016). En Busca del Quelite Perdido. Consejo Nacional para la Cultura y las Artes. https://web.archive.org/web/20180807002404/http:/enbuscadelqueliteperdido.com/

> *En busca del quelite perdido* es un libro acerca de Cholula que se compone de un ensayo testimonial, un archivo fotográfico y un recetario. En esta página puedes acceder a los contenidos originales del libro, modificarlos y enriquecerlos con tu propio testimonio, tus propias recetas y tus propias fotografías. Se trata de un libro viviente: un texto múltiple y dinámico abierto a tu participación. El objetivo es fomentar y sostener una reflexión pública sobre los cambios que la urbanización trae a la vida cotidiana en Cholula, y sobre lo que podemos hacer para que sean algo más que una pérdida: un ejercicio colectivo de reinvención cultural.

Source: Méndez Cota et al., 2016.

Living Books About History collection from infoclio.ch, from https://www.livingbooksabouthistory.ch/en/

> Les *Living Books about History* sont une collection d'anthologies numériques sur des thèmes de recherche actuels. Chaque livre contient un essai par les éditrices ou éditeurs, ainsi qu'une sélection de textes et de sources. Ces contributions peuvent être des articles, illustrations, vidéos, sites web ou enregistrements, qui existent pour la plupart déjà en libre accès sur internet. Le projet promeut l'Open Access dans les sciences humaines, en présentant sous une nouvelle forme des contributions librement accessibles sur le web. Les contenus disponibles en ligne sont soumis à des conditions d'utilisation hétérogènes. Afin de sensibiliser à la diversité des régimes juridiques et aux applications complexes des droits d'auteurs dans les sciences, chaque Living Book possède une section „Attribution", qui détaille la référence bibliographique originale ainsi que les conditions d'utilisation pour chaque contribution. Voir aussi la section Droits d'auteur. Tous les *Living Books about History* sont disponibles dans leur langue originale ainsi qu'en Anglais.

Source: *About: Living Books About History*, n.d.

BOOC (Books as Open Online Content). (2016-). UCLPress. https://ucldigitalpress.co.uk/BOOC

> This innovative new digital format presents subjects in the form of a 'living book' with articles of various types, in a non-linear thematic presentation that offers readers the option to select and sort subjects they wish to read. With long and short articles, blogs, videos, audio and Storifys, these 'books' are added to and grow over a period of time. Due to the nature of material featured in BOOC only certain types of content were subject to peer review. Non-traditional content such as videos and Storifys have been excluded from the peer review process. The A*cademic Book of the Future* is the first BOOC to be published by UCL Press. More content will be added to BOOC in the near future.

Source: Rayner, 2017.

Performative Books

A publication in which 'the mode of publication performs one of the central ideas the text itself seeks to articulate and explore' (Long, 2013). A performative publication wants to explore how we can bring together and align more closely the material form of a publication with its content. Performative publications focus on how the mode in which we produce, disseminate and consume text, influences the content and meaning of the text, or the way we interpret it. Also: webtext, technotext, liberature.

Juhasz, A. (2011). Learning From YouTube. MIT Press. http://vectors.usc.edu/projects/learningfromyoutube/

> The MIT Press, in partnership with the Alliance for Networking Visual Culture, has just published Learning from YouTube (MIT Press, February 2011), by Alexandra Juhasz, Professor of Media Studies at Pitzer College in Claremont, California. YouTube is the subject, form, method, problem, and solution of her video-book: an online inquiry into today's media. This is not your typical scholarly book (Learning from YouTube can never go to paper) Juhasz writes about social media inside and through it. This video-book contains a series of more than 200 texts and videos –"texteos" – that encourage users to think about YouTube by experiencing and learning within this digital entertainment platform. Whether in video or textual form, Juhasz writes in a relatively informal voice suitable to her subject and the online digital format of the project permits contributions from its users.

Source: Juhasz, 2011.

Long, C. P. (2017). Socratic and Platonic Political Philosophy: Practicing a Politics of Reading. Cambridge University Press. https://www.cambridge.org/gb/academic/subjects/politics-international-relations/political-theory/socratic-and-platonic-political-philosophy-practicing-politics-reading?format=AR&isbn=9781139899048

> Recently, I have been working on two performative publications. The first, my enhanced digital book to be published by Cambridge University Press entitled: *Socratic and Platonic Politics: Practicing a Politics of Reading*, argues that Platonic writing is political in the sense that it is designed to cultivate a community of readers committed to integrating the question of the just, the beautiful and the good into their relationships with one another. By writing dramatic dialogues that depict an enigmatic Socrates engaged with idiosyncratic individuals, Platonic writing requires its readers to cultivate a hermeneutic imagination that, when applied to concrete human interactions, has the capacity to open new possibilities of more just and enriching relationships. By publishing it as an enhanced digital book that encourages its reader to share their annotations and participate with the author of the text in an ongoing conversation, the hope is to put the community of collaborative readers for which the book argues into practice.

Source: Long, 2013.

Kolb, D. (1994). Socrates in the labyrinth: Hypertext, Argument, Philosophy. Eastgate Systems. http://www.eastgate.com/catalog/Socrates.html

> *Socrates in the Labyrinth* is a wide-ranging exploration of the relationships between hypertext, thought, and argument. Does hypertext present alternatives to the logical structures of if-then, claim and support? Is hypertext a mere expository tool, that cannot alter the essence of discussion and proof? Or is hypertext essentially unsuited to rigorous argument? Kolb's discussion is a nuanced, creative approach to these and other questions. Kolb points up the history of nonlinearity in philosophical work, from the Socratic dialogues through Hegel, and the variety of forms that philosophical discussion can take. Kolb's discussion -- and the structures of Socrates itself -- show that hypertext is not only a "super-encyclopedia" that leaves the essence of argument unchanged. But his keen understanding of both hypertext and postmodernism also shows that the relation between hypertext and "the end of the text" is more complex than is sometimes claimed. *Socrates in the Labyrinth* embodies several hypertext structures showing possibilities for writing and thought in the new medium. *Socrates in the Labyrinth* is one of the first works of hypertext non-fiction to examine and exploit the techniques of hypertext rhetoric discovered in the development of serious hypertext fiction. *Socrates in the Labyrinth* was created using Storyspace.

Source: Kolb, 1994, and Grigar et al., 2018.

Remixed Books

Books that consist of previously published materials that are remixed, reused or rewritten into a new publication (which often itself is open for remix again too).

Amerika, M. (2011). Remixthebook. U of Minnesota Press. http://www.remixthebook.com/

> The remixthebook.com website is the online hub for the digital remixes of many of the theories generated in the print book and features the work of artists, creative writers and scholars for whom the practice and theory of remix art is central to their research interests. remixthebook author Mark Amerika, along with co-curator and artist Rick Silva, has invited over 25 contributing international artists, poets, and critical theorists, all of them interdisciplinary in their own practice-based research, to sample from remixthebook and manipulate the selected source material through their own artistic and theoretical filters.
>
> *Source*: Amerika, 2011.

OBP Customise. (n.d.). Open Book Publishers. https://www.openbookpublishers.com/section/59/1

> We can help you mix, match, and personalise. Take chapters or whole books from our published list and make a special edition, a new anthology, or an illuminating coursepack. Each customised edition will be produced as a paperback and a downloadable PDF. So long as you have copyright permission for non-OBP material, we would be delighted to create a new, composite book for you, complete with cover and introduction.
>
> *Source*: "OBP Customise," n.d.

Versioned Books

Books that are published in different versions or in a processual, iterative manner. Also: processual books, iterative books

Wark, M. (2007). Gamer theory. Harvard University Press. http://futureofthebook.org/mckenziewark/index.html

- Version 1.1: http://futureofthebook.org/gamertheory/
- Version 2.0: http://futureofthebook.org/gamertheory2.0/
- Version 2.1: https://www.hup.harvard.edu/catalog.php?isbn=9780674025196
- Version 3.0: http://futureofthebook.org/mckenziewark/visualizations/index.html

> Together with the Institute for the Future of the Book I produced this website as a way to think about games. We released Version 1.1 back in 2006. Based on the many thoughtful and careful comments people made on it, I revised Gamer Theory and came up with Version 2.0, which is available here. Comments on Version 1.1 are now closed, but we welcome comments and discussion here at Version 2.0. Together with the Institute for the Future of the Book, I thought it would be interesting to make Version 2.0 of my book Gamer Theory available for people who would like to visualize it. So now we have a Version 2.0 here on the web that people can comment on, and a Version 2.1 in print form from Harvard University Press for people who like a well designed and elegantly produced artifact, and we also have what I think of as Version 3 of Gamer Theory — the visualizations. These pose the question of what digital technology can bring to the presentation of text.

Source: Wark, 2007.

Trettien, W. (n.d.). Cut/Copy/Paste. Fragments of History. University Of Minnesota Press. https://manifold.umn.edu/projects/cut-copy-paste

> *Cut/Copy/Paste* explores the relations between fragments, history, books, and media. It does so by scouting out fringe maker cultures of the seventeenth century, where archives were cut up, "hacked," and reassembled into new media machines.
>
> An overarching goal of this project—limned in greater detail in the abstract above—is to demonstrate how using digital technologies as bibliographic research tools challenges and changes the kinds of stories we might tell about early modern readers, writers, books, and their publishers. Toward that end, I am staging this draft digitally, so that you might explore some of the images, datasets, maps, graphs, and social networks that undergird my claims about Edward Benlowes as a publisher of boutique printed books. Other chapters on Little Gidding and John Bagford will be made available in this space, too, as this project progresses.

Source: Trettien, n.d.

Barral-Netto, M., Barreto, M. L., Pinto Junior, E. P., & Aragão, E. (2020). Construção de conhecimento no curso da pandemia de COVID-19: Aspectos biomédicos, clínico-assistenciais, epidemiológicos e sociais. EDUFBA. http://repositorio.ufba.br/ri/handle/ri/32370

> Com o objetivo de sistematizar um produto acadêmico com conhecimentos sobre a pandemia da covid-19, pesquisadores da Rede CoVida lançam um e-book gratuito nesta quinta-feira (17), às 16h. Intitulada “Construção de Conhecimento no curso da pandemia de Covid-19: aspectos biomédicos, clínico-assistenciais, epidemiológicos e sociais”, a obra poderá ser usada como material de didático por pesquisadores, professores e estudantes. A Rede CoVida é uma iniciativa que surgiu em março de 2020, a partir da união entre o Centro de Integração de Dados e Conhecimentos para Saúde (Cidacs/Fiocruz Bahia) e a Universidade Federal da Bahia (Ufba), diante da maior crise de sanitária global dos últimos 100 anos. Pesquisadores e profissionais da comunicação se uniram para oferecer informações científicas confiáveis que ajudassem gestores e a sociedade na tomada de decisões seguras sobre a Covid-19. Um segundo volume, que já está em fase de produção, abordará os temas relacionados à assistência à saúde, epidemiologia e questões sociais ligadas à pandemia. “A ideia foi produzir um e-book em um formato mais flexível, permitindo que sejam incluídos novos capítulos no curso da pandemia, que continua em curso, e como ela, buscas de explicações científicas e resultados de pesquisas, cuja produção se encontra em franca expansão”, explica o pesquisador Manoel Barral Netto.

Source: dos Anjos, 2020.

Lessig, L. (2006). Code (Version 2.0). Basic Books. https://web.archive.org/web/20190314234037/http://www.codev2.cc/ and https://www.socialtext.net/codev2/

> Lessig's "Code and Other Laws of Cyberspace" was published in 1999. The book quickly began to define a certain vocabulary for thinking about the regulation of cyberspace. More than any other social space, cyberspace would be controlled or not depending upon the architecture, or "code," of that space. And that meant regulators, and those seeking to protect cyberspace from at least some forms of regulation, needed to focus not just upon the work of legislators, but also the work of technologists. Code v2 updates the original work. It is not, as Lessig writes in the preface, a "new work." Written in part collectively, through a Wiki hosted by JotSpot, the aim of the update was to recast the argument in the current context, and to clarify the argument where necessary. Code v2 is licensed under a Creative Commons Attribution-ShareAlike 2.5 License license. It can therefore be freely downloaded and shared. Modifications must be similarly licensed. All royalties from the book will go to support Creative Commons. And the current version is now available on a wiki to be updated and corrected as the community of readers believes best.

Source: Lessig, 2019.

Schäfer, R. (2018). Einführung in die grammatische Beschreibung des Deutschen: Dritte, überarbeitete und erweiterte Auflage. Language Science Press. https://langsci-press.org/catalog/book/224

> Die dritte Auflage behebt Tipp- und Stilfehler und bietet einige neue Vertiefungsblöcke sowie eine komplette Überarbeitung der Grafiken und Diagramme. Ein Kapitel über Grammatik in Schule und Lehramtsstudium ergänzt das Buch.
>
> Back in 2017, we wrote a blog post on fluid publication. This explained the development of a book by the author together with the readership, reusing techniques well-known from software development. The author 1) starts with a draft version, collects feedback from colleagues, and then the stages of 2) (open) review, 3) acceptance, 4) community proofreading and finally 5) publication of the first edition follow. A history of the different versions is kept on GitHub. GitHub also provides functionalities to manage lists of open issues which still have to be addressed before the next stage can be initiated. Iterative publication does not end with the first edition, as explained in our 2017 blogpost. Readers will have feedback, and Paperhive allows us to collect this feedback.

Source: Nordhoff, 2020.

LIBER Citizen Science Working Group (2021) Citizen Science Skilling for Library Staff, Researchers, and the Public. LIBER Citizen Science Working Group. https://cs4rl.github.io/guide/#

> A practical guide designed to assist those organising and participating in a citizen science project to get the most out of the experience. The guide will enable you to have the skills to ensure a project is well set up from the start, is able to communicate to its stakeholders and citizens, manage its data and outputs, and overall ensure research benefits. The guide has been compiled by the LIBER Citizen Science Working Group and pulls on the generous contributions of the open science community. The book is intended as a short guide and will be approximately one hundred pages in length. The publication will be produced as multi-format and multi-channel (print-on-demand, PDF, Webbook, website, eBook, and as a Jupyter Book – and will be technically designed for reuse, for example in – community translations or in MOOCs. Book sections will be released incrementally as they are ready. Ideally, the book will become a community-owned publication with regular updates.

Source: Hansen et al., 2021.

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PART 3: TECHNICAL WORKFLOWS, TOOLS, AND PLATFORMS FOR EXPERIMENTAL PUBLISHING, INTERACTION, AND REUSE OF BOOKS

by Tobias Steiner, Marcell Mars, Simon Bowie, Janneke Adema

For this third part of the scoping report, we will be looking at the technical developments around experimental book publishing. We will be doing so in a three-fold manner in these subsequent sections. First, instead of conducting a landscape study ourselves, we will be reviewing a number of studies and resources that have recently been released and that have tried to categorise, analyse, and map the open source publishing tools and platforms currently available to support open access (book) publishing. Our focus in this analysis will predominantly be on those tools and technologies that can support the kinds of experimental publications that we have identified in the first two parts of this scoping report. With the current version of the report updated in 2022, we have substantially expanded this third part and included segments that had previously been covered in our *Promoting and Nurturing Interactions with Open Access Books: Strategies for Publishers and Authors* report (Adema, Moore, et al., 2021b), while also adding new examples and information that further research has revealed over the past year.

Secondly, in section 2, we will outline a proposed methodology to analyse and categorise the currently available tools and technologies to support the creation of an online resource or Compendium for publishers and authors in year 3 of the COPIM project. This Compendium will include the technological support and workflows available to enable more experimental forms of book publishing, whilst showcasing examples and best practices for different levels of technical know-how.

Thirdly, in section 3, we will make an initial attempt at categorising a selection of tools following this proposed methodology, where we will be focusing on collaborative writing tools and on annotation tools—and the software, platforms, and workflows that support these—in first instance. The choice for these tools is driven by the pilot projects we are supporting as part of the COPIM Experimental Publishing and Reuse Work Package, which focus on several experimental practices, including collaborative writing, annotation, remix, versioning, open peer review, and computational publishing.

Review and Analysis of Key Studies and Resources

Maxwell, J. W., Hanson, E., Desai, L., Tiampo, C., O'Donnell, K., Ketheeswaran, A., Sun, M., Walter, E., & Michelle, E. (2019). Mind the Gap: A Landscape Analysis of Open Source Publishing Tools and Platforms. PubPub. https://doi.org/10.21428/6bc8b38c.2e2f6c3f

The first resource or environmental scan we looked at was the *Mind the Gap* report, conducted by John Maxwell et al. at Simon Fraser University in Vancouver on behalf of the MIT Press after they secured a grant from the Mellon foundation in 2018. As they state in the report, the award was to

> 'conduct a landscape analysis of open source publishing systems, suggest sustainability models that can be adopted to ensure that these systems fully support research communication and provide durable alternatives to complex and costly proprietary services.' (Maxwell et al., 2019)

As they note, the last few years have seen an increase in the number of open source publishing platforms (many well-developed, stable, and supported) or, in other words, production and hosting platforms for both scholarly books and journals. The report argues that this is evidence of an infrastructure 'ecology' emerging which includes complementary, non-competitive service technologies instead of proprietary and often bespoke software systems. This is of particular relevance for our work with COPIM, as

> 'at a more ambitious level, they may even form a layer of community infrastructure that rivals—or at least provides a functional alternative—to the commercial infrastructure run by a small number of for-profit entities' (Maxwell et al., 2019).

Mind the Gap provides a guidebook through this proliferating yet noisy landscape, as they work to help 'the university press community and other mission-focused enterprises' (Maxwell et al., 2019) with decision-making and project planning. Next to being a catalogue of open source publishing tools, the report also examines the ecosystem in which these tools and projects exist. The element of community infrastructure and interoperability is key here, as a 'system in which these components can be mobilized to serve larger goals' (Maxwell et al., 2019).

Part II of the report serves as a catalogue of open source publishing projects. For each open source project, Maxwell et al. provide a summary description plus details on the host organisation, the project's principal investigator or leadership, funders, partners (both strategic and development), date of original release, and current version, plus some basic data drawn from the projects' Github/Gitlab repositories, including development language, license, and number of contributors. As part of their methodology, they looked at tools and projects that were 'available, documented open source software relevant to scholarly publishing' and that 'were 'still alive'—that is, with evidence of active development' (Maxwell et al., 2019). They emphasise however that this is a dynamic space, and that their cataloguing is a snapshot of a specific moment in time. As such, Maxwell et al.'s analysis is not only based on individual tools but on a consideration of the dynamic landscape as a whole. Their categorising is mainly based on exclusion, where they did not include tools and projects that were closed-source, cloud-based services, research (instead of publishing) tools, library infrastructure, DIY ad-hoc toolchains, and dormant projects.

The key themes that informed their research were sustainability, scale, collaboration, and ecosystem integration. One key research question was 'who will care about these projects?' In other words, 'care enough to fund, contribute, promote, use, and ultimately further their useful life? What are the values and mechanisms that cause people—especially external stakeholders—to care enough about these projects to keep them alive, and even thriving, going forward?' (Maxwell et al., 2019). The gap that they have noticed as part of their research is one of co-ordination and integration between and among projects. In other words, there is a lack of interoperability and incentives for collaboration between projects.

In Maxwell et al.'s mapping of the tools and projects they emphasise a few main characteristics:

- Difference between journal publishing and book publishing
- Centralised vs distributed models
- Old projects and new projects

- Functional scope (i.e., development across hypothetical workflow stages)
- Operational details (development features, languages and frameworks, licenses, and funding)
- Traditional functions vs. new capacities (i.e., interactive scholarly works)
- Technological approaches and trends (approaches to XML, conversion and ingestion strategies)
- Workflow modeling and management
- Innovating new possibilities

Key findings were issues of:

- ***Siloed development***, with the recommendation that 'where possible, collaboration, standardization, and even common code layers can provide considerable benefit to project ambitions, functionality, and sustainability' ("Prospects," 2019).

- *The organisation of* ***the community-owned ecosystem*** itself, where the recommendation is that 'neither a chaotic plurality of disparate projects nor an efficiency-driven, enforced standard is itself desirable, but mediating between these two will require broad agreement about high-level goals, governance, and funding priorities—and perhaps some agency for integration/mediation' ("Prospects," 2019).

- ***Funding***, where the question was 'what would project funding look like if it prioritized community governance, collaboration, and integration across a wider ecosystem?' ("Prospects," 2019).

- ***Longevity and maintenance***, with the recommendation that 'if the care and upkeep of projects could be extended to multiple groups, multiple institutions, then not only is there a larger and more diverse set of people who care, but opportunities for resourcing increase, and also, when one group's priorities inevitably shift, it is less likely that a project is simply abandoned' ("Prospects," 2019).

- ***Ecosystem integration***, with the reminder that 'if the goal of community-owned infrastructure is to succeed, then structural attention needs to be paid to the integration of projects, goals, and development efforts across the ecosystem' ("Prospects," 2019).

- Whether we need ***centralised or distributed options, or a tertiary service provider***? With the recommendation that 'if longer-term funding for sustainability is needed, then a mediating layer might productively function as a broker of such funding, assuming overhead costs remain low' ("Prospects," 2019).

- ***Scale***, where almost all of the projects they examined are too small, niche or specialised to be sustainable on their own. Additional funding will be needed.

- ***The importance of trust*** *in* open scholarly communication, which presents challenges for scalability. Recommendation that 'community coordination may go some distance towards addressing this [issue]' ("Prospects," 2019).

Lewis, D. W. (2020). A Bibliographic Scan of Digital Scholarly Communication Infrastructure | Educopia Institute. Educopia Institute. https://educopia.org/mapping-the-scholarly-communication-landscape-bibliographic-scan/

The second resource we looked at is a Bibliographic Scan by David W. Lewis on behalf of the Educopia Institute. The blurb accompanying this resource summarises its aims quite well:

> This Bibliographic Scan by David W. Lewis provides an extensive literature review and overview of today's digital scholarly communications ecosystem, including information about 206 tools, services, and systems that are instrumental to the publishing and distribution of the scholarly record. The Bibliographic Scan includes 67 commercial and 139 non-profit scholarly communication organizations, programs, and projects that support researchers, repositories, publishing, discovery, preservation, and assessment.
>
> The review includes three sections: 1) Scholarly citations of works that discuss various functional areas of digital scholarly communication ecosystem (e.g., Repositories, Research Data, Discovery, Evaluation and Assessment, and Preservation); 2) Charts that record the major players active in each functional area; and 3) Descriptions of each organization / program / project included in the Bibliographic Scan. This work has been produced as part of the "Mapping the Scholarly Communication Infrastructure" project (Andrew W. Mellon Foundation; Middlebury College, 2018-20).

The second and third part of the report list and describe projects, programs, and products (as well as listing some key literature on these), and categorises them according to Researcher Tools (Reading, Writing, Annotation, and Collaboration), Repositories, Publishing, Discovery, Evaluation and Assessment, Preservation, and General Services. This categorisation also indicates whether the organisation hosting the project or product is non-profit (NP) or for-profit (P).

Confederation of Open Access Repositories (COAR), & Next Generation Libraries Publishing. (2021). SComCaT: Scholarly Communication Technology Catalogue. https://www.scomcat.net/

The third resource we looked at is the *Scholarly Communication Technology Catalogue (ScomCat*), a catalogue or database of open tools, platforms, and technologies that identifies relationships and dependencies between them. Developed by Antleaf for the Confederation of Open Access Repositories (COAR) as part of the Next Generation Libraries Publishing project, the catalogue maps these technologies according to adoption levels, functions, categories, governance, and readiness. This catalogue has now been made openly available since January 2021. Our thanks go out to the Next Generation Libraries Publishing Project for sharing the early catalogue-in-progress version with us. From the catalogue's home page:

> SComCat comprises a catalogue (knowledge base) of scholarly communication open technologies where the term "technologies" is defined to include software and some essential running services. The aim is to assist potential users in making decisions about which technologies they will adopt by providing an overview of the functionality, organizational models, dependencies, use of standards, and levels of adoption of each technology.

> The scan includes tools, platforms, and standards that can be locally adopted to support one or more of functions of the lifecycle of scholarly communication, which is conceptualized as including the following activities: creation, evaluation, publication, dissemination, preservation, and reuse.(Confederation of Open Access Repositories (COAR) and Next Generation Libraries Publishing, n.d.)

Radical Open Access Collective. (n.d.). Information Portal: OA Publishing Tools. https://radicaloa.disruptivemedia.org.uk/resources/publishing-tools/

The fourth resource we looked at is the Radical Open Access Collective's Information Portal, which includes a list of Open Access Publishing Tools. This page contains a list of open source tools, software, and platforms for scholar-led approaches to open access publishing. It lists all-in one platforms or services as well as more targeted solutions. It provides descriptions of the tools and links to their home pages and to other resources related to the tools or platforms.

Kramer, B., & Bosman, J. (n.d.). 400+ Tools and innovations in scholarly communication. Google Docs. https://bit.ly/innoscholcomm-list

The fifth resource is a shared crowd-sourced database of tools and technologies in scholarly communications, that grew out of the "101 innovations in scholarly communication" project led by Bianca Kramer and Jeroen Bosman at Utrecht University in the Netherlands. As they explain:

> When we published the 101 list of selected innovations our database already contained some 200 innovations/tools. The 101 selection was strictly on innovativeness and thus did not contain recent tools if they where not innovative compared to older ones with the same functionality, even if the more recent ones were more popular or well-known. The database shared here has dropped that strict innovativeness criterion and thus contains multiple tools offering basically the same functionality. (Kramer & Bosman, n.d.)

Tools are identified by workflow phase (preparation, discovery, analysis, writing, publication, outreach, assessment) and short descriptions of each tool are provided.

Tennant, J. P., Bielczyk, N., Tzovaras, B. G., Masuzzo, P., & Steiner, T. (2020). Introducing Massively Open Online Papers (MOOPs). KULA: Knowledge Creation, Dissemination, and Preservation Studies, 4(1), 1. https://doi.org/10.5334/kula.63

This sixth resource is included here due to its approach to identifying and discussing common traits of collaborative writing tools: while the main focus of '"Introducing Massively Open Online Papers (MOOPs)" is on 'collaboratively author[ing] research articles in an openly participatory and dynamic format' (Tennant et al., 2020), the workflows that are explored in the paper and the steps taken to identify common features to evaluate a variety of tools along a set of predefined criteria (see the paper's Table 2) that are posited as user requirements for collaborative writing platforms, are introduced here in a concise fashion that warrants further adoption and expansion to fit the needs of experimental book publishing.

Categories introduced by this paper that might also inform our discussion of experimental publishing tools (Authorea, CryptPad, Google Docs, Overleaf , HackMD[11]) include:

- Sustainability[12] model (FLOSS (open source, self-hostable), freemium [basic functionality for free, premium add-ons], proprietary but free-to-use (via user account/login).
- Based on Open Source platform (yes, no - open repository of software code available).
- Option to export to open formats, (if yes, which kind of output format - markdown, git, Word, Open Document Text, html).
- Interactive multi-user collaboration (commenting, editing, etc.) .
- Integration of Reference Management solutions (i.e., using Zotero and other RefManager tools with your collaborative writing tool).
- Predefined Formatting / Layout styles to fit journal house styles where possible.

Proposed Methodology for an Online Resource to Support Experimental Publishing

In year 3 of the COPIM project, we are delivering an online resource to support authors and publishers in publishing more experimental long-form works. As part of this research and scoping report, we propose a methodology or a set of methodologies to support the development of this resource, which we hope will become community-maintained in the future. By publishing this report and updates to it, we hope to receive further feedback from publishers, authors, technologists, and platform providers on this proposed methodology and on the set-up and usefulness of the online resource. We then hope to be able to incorporate this feedback to further develop and fine-tune the ideas presented in this report over the next couple of years (as part of various updated versions of this report).

The first aspect we are focusing on is identifying those open source tools, platforms, and technologies that are particularly useful for more experimental forms of publishing (because they support the creation of experimental books, for example). In the first instance, we use the resources listed in the previous section to identify those tools that are currently available. As part of our subsequent analysis of these tools we propose the following methodology or set-up for the online resource:

- An **introductory part/glossary** that defines what we mean when we refer to open source tools, and how—within the category of open source tools—one can differentiate between software packages and hosted solutions, and between the commercial, not-for-profit, and other underlying business models (e.g., institutional support) that support these services or platforms.

[11] see https://hackmd.io/s/how-to-create-book for a git- and &markdown-based approach to book creation

[12] Tennant et al. 'It is necessary to be aware of and distinguish between commercial versus free and open-source software (FOSS) services and services that target a mainstream audience versus those that were developed for researchers, with research-specific features for data privacy and security, intellectual property protection measures, and licensing.' (2020)

- A review of those tools we deem most useful to support the publication of experimental books. Next to providing a basic description of the tool and its purpose and usage, this review considers collaborative capabilities and features (e.g., synchronous editing, in-document change-tracking and versioning) and its availability as a stand-alone tool and/or platform, while also focusing on the skills level of both publishers and authors, focusing on the technical knowledge required to install and use the tool, software, or platform discussed. In addition to this, the review focuses on the longevity and stability (sustainability) of the tools under review. For example, we explore who is maintaining them under which conditions and in what way, and how many times they have been successfully implemented.

- A categorisation/tagging of tools according to the main experimental publishing functionalities we have identified (i.e., annotation, collaborative writing, open peer review, multimodal publishing, versioning, enhancing existing documents). Our aim with this categorisation is to provide authors and publishers with a range of tools to choose from if they are interested in experimenting with, for example, open peer review or multi-modal publishing. But we also want to outline the difference in functionality between tools, and the skills-level required to implement the specific tool in the research or publishing workflow, and show what you can do with the tools based on your skills level. (From a developer's perspective, for example, how easy is it to install and run the tool locally or on a VPS.)

- Work backwards from a few key examples of previously published experimental books to analyse which tools and workflows were used to produce those experimental books (while linking back to potential alternative tools, or new tools or updates to tools released after the example book was published). This would include user experiences or stories/narratives (where available) about the research and publishing process involved in their creation. In other words, our aim is to map tools and technologies onto real examples of OA experimental books to showcase what you can do with these tools and to show proof of concept.

This proposed methodology comes with certain risks and unknowns that we hope to more clearly map and identify when we request community feedback on this scoping report. These are some of the risks we have identified up to now:

- How to involve the community of technologists, software, and platform providers in the set-up of this online resource (again, as a community-led endeavour), while at the same time being able to provide an assessment / review of the tools discussed as part of the online resource? One way to resolve this is by looking at clear categories to base our assessment on, which can be devised with the aid of the technologists involved.

- How to make sure we adequately capture researchers' and publishers' workflows or are able to suggest software stacks that can be implemented in publishing or research workflows? One of the ways we hope to achieve this is by first of all requesting feedback from the ScholarLed presses involved in the COPIM project; and second of all by requesting feedback from other presses (for example, via workshops and interviews).

- How to ensure the online resource will be maintained after the project ends? As we are keen to develop this online resource from the start as a community-led project, we hope to involve the

community of authors and publishers interested in the publishing of experimental books in the set-up of this online resource. We imagine that in the future it can be maintained by a community of volunteers (led by an Advisory Board, for example), or can be integrated in the wider COPIM infrastructural provision, for example as a service connected to the Open Book Collective. As the tools and resources we will be describing and analysing as part of this online resource will be highly dynamic, it is crucial that we design this online resource as a processual endeavour that can easily be updated and maintained by the scholarly and publishing community. As part of the research for this online resource (and in collaboration with the COPIM Governance Work Package) we will be studying the governance of similar projects and resources (such as the Electronic Literature Directory) that have been able to achieve a certain level of longevity.

Categorising Tools: On 'Open Source' Tools

To make a head start on the proposed methodology for an online resource around experimental book publishing described in the previous section, we want to outline both here for this report and for any future work based on our research, some of the principles and concepts that underlie our work, as well as what we feel would be desired aspects for technical workflows to have in the context of experimental book publishing. Similar to Maxwell et al. (Maxwell et al., 2019), our approach to 'open source' is informed by the understanding encapsulated in the (F/L)OSS acronym, i.e., the notion of Free/Libre and Open Source Software that is 'developed in such a way that its source code is open and available online, and explicitly licensed as such' ("Setting Context," 2019). Hence, we limit our selection to those tools that have been made available as self-hostable packages under the premise of open, permissible licensing (e.g., GPL, Apache 2.0). We also highlight the underlying value system and modus operandi chosen by each of the tools so as to make visible the features that may prove conducive for inclusion in a curated selection of such tools, as we seek to do in the COPIM project.

From a historical perspective, it seems pertinent to keep the underlying factions of the struggle to define open software in mind: while the Free/Libre Open Source Software (FLOSS/FOSS) camp has postulated four fundamental freedoms that are governing its value-based proposition, this is not necessarily true for the open source approach to software, which is more occupied with the practical means of software production/development following a 'bazaar' model of collaboration (Raymond, 1998), which in turn does not explicitly enshrine the Free Software movement's fundamental freedoms.[13]

Graphical User Interfaces vs Command Line Interfaces

Many interesting experiments happen (both in digital scholarship and publishing) when using and combining different tools together in new ways. If these attempts are successful there is a significant chance the newly introduced (combined) technique will become a feature of existing tools or even a tool in its own right. To encourage scholars and publishers to start experimenting with new digital tools

[13] As FSF founder Richard Stallmann puts it, Open Source 'values mainly practical advantage and does not campaign for principles. This is why we [the Free Software movement] do not agree with open source, and do not use that term.' (2007)

and technologies as part of their research and publishing practices, we want to make the argument that it is productive, from a technical perspective, to understand and capture this process as a sequence of steps, performed by orchestrated human labour and/or software tools, moving from the beginning to the end of a specific work (or research or publishing) process. This is what is commonly called a *workflow*. A workflow's sequence consists of distinctive repeatable patterns, and those patterns might overlap throughout authoring and publishing workflows.

Most distinctive operations in the sequence of a workflow are exposed to the user through a user interface. The most popular and wide-spread one is the so-called 'point & click' graphical user interface, with its iconic drop-down menus where one can choose which operation to be performed by the tool.[14] In general, people know how to point & click in the drop-down menu of Microsoft Word, LibreOffice, or Google Docs, for example, and open a file, select text, apply italic or bold font styling, and save the file in one of the available file formats the tool offers. If we would have to express the level of user expertise needed in order to work with these kinds of tools, we could classify them as 'a regular user.'

Authoring tools such as Microsoft Word, LibreOffice, or Google Docs expect a user to open a certain number of supported input file formats such as ods, doc, md,[15] and export or save them in, again, a certain number of supported output file formats. Almost everything a user can do in these kinds of tools is supposed to be done manually by pointing & clicking on drop-down or contextual (i.e., right-click on one's mouse/pointing device) menus. If, for example, a user needs to process digital photos, she can use a similar GUI tool such as Photoshop. Following the suggested workflow sequence, she would then open a photo, point & click on menus in Photoshop, and save the graphics into a file format (e.g., jpg, png) that text authoring tools such as MS Word are able to import.

These tools can be used in a sequence of steps and following distinctive patterns of use, but due to the design principles that many of these GUI-based tools follow,[16] their role in an open workflow potentially involving a set of interchangeable tools/applications is doubtful.

While there is nothing in a graphical user interface that would make a single tool in a workflow less interoperable with other tools, both the evolution of proprietary file format standards and corresponding developments pushed by commercial software companies to make their GUIs uniquely fit their distinguished user group, has led to substantial problems with regards to interoperability that, through years of use of these GUIs by its users, have led to a profound silo-isation of GUI tools.[17]

However, an alternative culture does exist, one mostly built around the so-called 'command line interface', which preceded the GUI era. This culture derives from and is based on decades of development of the Unix operating systems ecosystem. In summary, this culture's underlying philosophy states: 'Write programs that do one thing and do it well. Write programs to work together. Write

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[14] See: https://en.wikipedia.org/wiki/Point_and_click

[15] For further information, see: https://en.wikipedia.org/wiki/Google_Docs#Supported_file_formats

[16] i.e., the lack of openly-accessible connectors combined with a reliance on proprietary standards and interfaces, which can often lead to a lock-in of users. See e.g. Hoe, N. S. (2006, p. 23ff.).

[17] For a range of issues around the "pluggability" and interoperability of software, see e.g,. Garlan et al, 1995; and Shah, Rajiv & Kesan, 2008.

programs that handle text streams, because that is a universal interface' (Salus, 1994). In Unix, interoperability is key, where it is expected that the output of one tool (for example the 'cat' tool, which outputs text of a given text file) can be used as an input for another tool. This tool's output could then, again, become the input for yet another tool, a third, fourth or as many tools as one would want to link together in a pipeline of *interoperable* tools to form what is generally called a *toolchain*.

This flexibility comes with a price, however. Not all users are happy or familiar with typing commands into a terminal (aka the 'command line'), especially when their usual interactions with a computer have been solely mediated through GUI-based desktop applications. The most widely used proprietary desktop operating systems, Microsoft Windows and Apple's macOS, both obfuscate their terminals from the average user to strongly discourage the use of command-line functions.

However, if one wants to explore experimental research or publishing pipelines, forms of automation such as batch processing—including the automated generation of different output formats from one source format; automated and streamlined lay-outing along a pre-defined set of rules; and/or massive conversion of files such as the transformation of image files to one compatible format for web publications—would really benefit from command line tools/utilities, which are also often developed years before these kinds of features get implemented in mainstream GUI authoring tools.[18] As such, research teams or publishing operations that are open to typing lines of commands into the terminal will most likely be able to get things done much quicker.[19] Command-line based tools such as Pandoc, PDFtk, Xpdf-utils or Sphinx, Jekyll, and Hugo are able to manipulate, extract, convert, and process PDFs, plain text, LaTeX, HTML or Markdown files into all kinds of documents, websites, or publications ready to be served to end users or just passed further down the tools pipeline. To be able to really explore the many possibilities experimental publishing and experimental books can offer, we would therefore always recommend research teams and publishing projects familiarise themselves with the basics of the command line interface.[20]

Desired Aspects of Technical Workflows

From a technical perspective, we at COPIM are committed to open source solutions. To accommodate the creation of experimental books in the best way possible, we recommend that any technical research or publishing workflow takes into consideration the following desired aspects:

[18] For more information on this aspect, see e.g., Kelty, 2014; and Heller et al., 2014.

[19] A toolchain that exemplifies this approach can be found at work in Coko's XSweet. XSweet is a free, open source conversion tool for converting Word documents (.docx) into HTML and beyond. The tool is built as a pipeline of XSL transformations and designed to be modular, flexible, and extensible to support a wide variety of needs and workflows. More info: https://xsweet.org/

[20] Three free and highly recommendable introductions to the command-line interface are Shaw, 2011, FSF, 2009, and Bates, 2014.

- The code used within the workflow should be **open source** available in a version control system.[21]
- The workflow should be **user friendly** (ideally when working with both command line and graphical user interfaces).
- The workflow should be **easily installable/deployable** in a cross-platform environment (available for a variety of Computer Operating Systems including Linux / Unix, Apple's macOS, Microsoft Windows, Google Android, Apple's iOS, as well as taking different types of platforms such as desktop computers / laptops, mobile phones, tablets, and web servers and cloud services into account),
- The workflow should be **modular**, so that any work done as part of one certain phase/step of the workflow can be re-used further down the pipeline of another compatible workflow. This translates to an operationalisation of steps that can be actioned by (sets of) commands in the CLI to be combined in a modular way.
- The workflow should be **interoperable** and support established standards such as xml-based document formats (ods, odt, xml, epub) or plain text markups such as HTML and Markdown, both for its inputs and outputs. This would be to enable the workflow to follow up on what has already been done in another compatible workflow; or to enable its output(s) to be used as (an) input(s) for another compatible workflow.
- It should be **possible to build distributed services** around/on top of a given workflow, meaning that it:
  - can be installed and run on your own computer/server,
  - can be installed and run as a node in a federated network (such as email infrastructure, the Mastodon social network, PeerTube video delivery, or the XMPP instant messaging protocol),
  - can be installed and run as a node in a peer2peer/mesh network (such as BitTorrent content delivery, the Tor anonymity network, or the Freifunk wireless community network).
- A workflow's sources should **remain human-readable** and should **not require idiosyncratic (versions of the) software** in order to use the workflow (i.e., this would be an argument for using Markdown documents over Rich Text formats that tend to bury information relevant for text output in the depths of their xml-based document structure). This would also make source materials easier to archive.

[21] 'Version control is a system that records changes to a file or set of files over time so that you can recall specific versions later. For the examples in this book, you will use software source code as the files being version controlled, though in reality you can do this with nearly any type of file on a computer.' (Git, n.d.)

- The workflow should be **collaborative** in either an asynchronous or synchronous way.[22]
- The workflow should **track the edits/versions** of who, when, and what changed in a (collaborative) document.
- The workflow should **allow for (interoperable) annotations and/or comments**. This means that, ideally, annotations and/or comments are available as human readable, versioned source materials that include contextual information/metadata about e.g., their relation to the annotated text.
- The workflow should render/transform user input into results/output(s) that manifest in an online and/or offline-ready website, EPUB, PDF or other formats ready to be read, edited, annotated, commented, widely distributed, preserved, archived, and used by other compatible workflows.

We are aware that it will be difficult for any technical workflow to cover or include all of the aspects listed here. In most research and publishing contexts, workflows are chosen based on criteria of speed, ease of use, and availability. Familiar user interfaces therefore have a better chance to be picked up in the first instance (which also explains the continued preference for print-based interfaces and workflows in digital scholarship and publishing). Similarly, through our institutional settings, we have grown accustomed to working with commercial software solutions (e.g., provided by Microsoft, Apple, Google). This is why, for example, interfaces that are similar to Google Docs (often used to support collaborative writing projects) will be the starting point for many collaborative research projects. However, as a piece of software, Google Docs is proprietary, cloud based, not installable/deployable, and hardly modular or interoperable. Still, even the option of being able to export a given document via "Save as" into different formats can present a first step and an entry point to opening up publishing to experiments, as this output can then be used as a starting point to follow-up with workflows that cover more of the desired aspects listed here.

Plenty of alternatives to GoogleDocs exist in the free & open source world. For example, within the COPIM project we use ONLYOFFICE integrated with our own instance of the file hosting service Nextcloud, an open source alternative to Microsoft's SharePoint. Both projects are open source, interoperable, support established standards, are well integrated, relatively easy to set up and to run on a server. Nextcloud has a fairly modular architecture which has attracted a whole ecosystem of plugins that can address different tasks, among which sits ONLYOFFICE, which follows the familiar paradigm of the Microsoft Office Suite. Experimental books or publishing projects that involve elements of (collaborative) writing and editing, just as is the case in proprietary office suites, will most likely, benefit most from the possibility to save their outputs in a variety of output formats, giving them the flexibility to incorporate that output into another (follow up) workflow again.

[22] In this context, we understand 'synchronous collaboration' as a mode that allows users to write, comment, and edit a given document while being logged in at the same time and together with others, while 'asynchronous collaboration' would mean a distributed approach in which individuals can work on a given text, but this cannot happen in the same temporal frame with others.

Some of the desired workflow aspects listed previously are only achievable if they are set up, ran, and maintained by publishers or researchers who have a certain (minimal) level of computer literacy and skills (which is often lacking, as Adema and Stone have shown (Adema & Stone, 2017). But for some of these steps only a few basic tweaks to software settings are needed to achieve the desired set up or results. In some cases, as explained, this involves being familiar with a command line interface (including reading the documentation about option flags which should be added to the software in order to make it do something specific, for example).

If publishers or researchers are able to connect to a server via SSH and to edit in the server's shell (configuration) text files or if they can run command line tools on their desktop computer, a lot more options for experimental work are opened up and become possible. We feel that these basic skills, together with the openly available documentation that accompanies many of the tools and technologies we will discuss in this report, should be enough for authors and publishers to experiment with these tools and adapt them according to their needs. One of the things we want to start to explore with this research and scoping report, is how we can aid in this process of enabling researchers and publishers to use and adapt the tools needed to create experimental books.

The more expert knowledge of system administrators and programmers is primarily needed when experiments fail or get stuck. However, recent trends around cultures of software deployment, which were introduced by the use of virtual machines in the cloud, followed by the acceptance of light virtualisation aka. containerisation, greatly improved the testing and usage of software tools. These days any software tool developed to be run on a server should come with decent accompanying documentation and should in most cases only need a few lines pasted into the command line to use the tool according to one's needs. To support the uptake of tools and software that can help publishers and authors in the creation and publication of experimental books, we will in this report, where appropriate, try to describe the basic competencies needed (as a basic or regular user, an advanced user, or an expert user) to successfully test different types of software.

Collaborative Writing Tools

Within COPIM we are running a series of pilot projects focused on creating experimental books together with a selection of authors and publishers. In this section we will focus on tools that support a variety of practices or modes of research that accompany or form the basis of various experimental publishing projects, namely collaborative writing and annotation tools. Other practices covered in this section include the facilitation of remix and re-use of content through open licensing, versioning and forking, as well as computational publishing.

Collaborative real-time writing / editing as an idea was introduced in 1968 by Douglas Engelbart in *The Mother of All Demos*[23] but it took another forty years to be implemented in such a way that people could work collaboratively from their personal computers and rely on the service to keep their documents in place. In order for that to happen, Google played an important role by first acquiring Writely in 2006 and then in 2009 the team of AppJet created the, at that time, very impressive EtherPad

[23] See Charoy (2016); and *The Mother of All Demos, presented by Douglas Engelbart (1968) —YouTube*.

application (mostly as a demo for their underlying technology). AppJet's engineers joined the Google Wave team and EtherPad was made available by Google as open source software.[24]

Pads & platforms: EtherPad, CryptPad, CodiMD/Hedgedoc

In the following decade we witnessed the development of a new culture of collaborative writing/editing that developed around so-called 'pads'. The common denominator of pads is that their source text is always available in some simple human readable form (most recently Markdown) and their features have been mostly developed to support the communities using the tool.

EtherPad Lite was a rewrite of EtherPad, aiming to to make it less resource hungry. It was written in a popular programming language (Javascript), making EtherPad Lite easy to install on one's own server—i.e., EtherPad Lite can be installed via Linux distribution package managers or via Docker. Many activist organisations have chosen to use EtherPad.[25]

One notable project which follows the pad paradigm is **CodiMD (now HedgeDoc)**.[26] In CodiMD's Software-as-as-Service rendition HackMD, the platform is focused on providing an online space for collaborative text editing by integrating an account login system with popular online services (Google, Facebook, Twitter, Dropbox, GitHub...) and integration with GitHub for easier development of documentation. This wide range of log-ins makes the platform an interesting exemplar for experiments in the field of publishing, as it facilitates potential participation across a wide range of stakeholders. Next to the platform offer, and similar to Etherpad, self-hosted instances of CodiMD have grown popular in and beyond the HE context.[27]

Another example of a collaborative writing pad is the employee-owned French company XWiki SAS, which has developed a suite of tools focusing on cryptography including CryptPad, following the 'zero knowledge' approach where every web browser encrypts its own pad content so that even the owners of the server serving the web app to the web browser cannot decipher the encrypted content. This whole ecosystem of apps can also be installed on one's own server.

The following table displays a list of recent tools that can be used to facilitate collaborative writing in a variety of ways. The list is limited to collaborative writing tool solutions that are under active

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[24] Cf. Hoya (2010); or Ginsberg (2010).

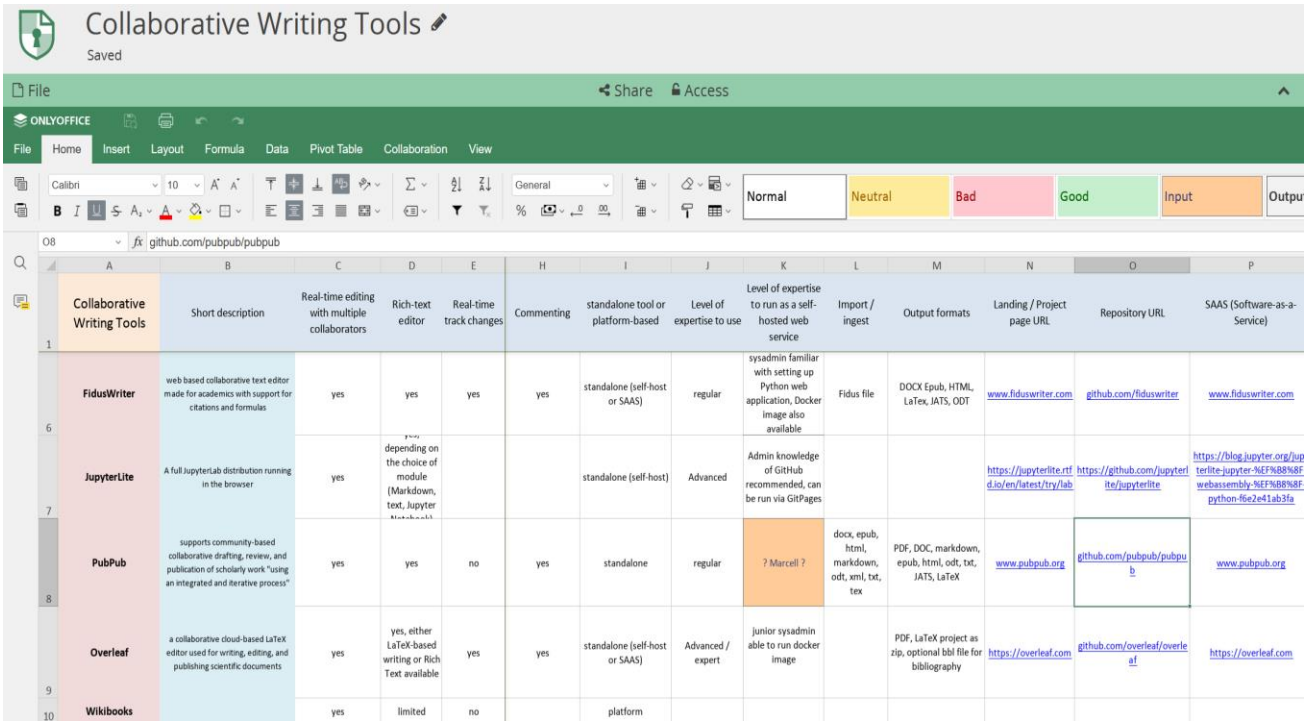
[25] Riseup is a volunteer-run collaborative which supports activist and other organisations. They provide many different services including running an EtherPad instance at: https://pad.riseup.network. Another reputable organisation running EtherPad is Framasoft (Lyon, France) with https://framapad.org.

Examples from the Higher Education context include *The Carpentries*, an Open Science-focused scholarly community that has a public instance running at https://pad.carpentries.org. Etherpad Lite is also quite popular among student union-based initiatives, see e.g., FU Berlin's SplinePad or University of Hamburg's Computer Sciences student group pad at https://ep.mafiasi.de/.

[26] https://github.com/hackmdio/codimd aka HackMD in its commercial, Software-as-a-Service (SAAS) branch. As of December 2020, development on CodiMD continues under the name of HedgeDoc.

[27] For a collection of instances, see: https://flavoursofopen.science/community-run-open-source-tools-for-video-and-text-collaboration#hedgedoc .

maintenance (i.e., updated in the recent past), and available under an open-source license. This spreadsheet and the spreadsheet listing annotation tools added to the next section of this report, are works-in-progress and will continuously be updated.



Collaborative Writing Tools	Short description	Real-time editing with multiple collaborators	Rich-text editor	Real-time track changes	Commenting	standalone tool or platform-based	Level of expertise to use	Level of expertise to run as a self-hosted web service	Import / ingest	Output formats	Landing / Project page URL	Repository URL	SAAS (Software-as-a-Service)
FidusWriter	web based collaborative text editor made for academics with support for citations and formulas	yes	yes	yes	yes	standalone (self-host or SAAS)	regular	sysadmin familiar with setting up Python web application, Docker image also available	Fidus file	DOCX Epub, HTML, LaTex, JATS, ODT	www.fiduswriter.com	github.com/fiduswriter	www.fiduswriter.com
JupyterLite	A full JupyterLab distribution running in the browser	yes	depending on the choice of module (Markdown, text, Jupyter			standalone (self-host)	Advanced	Admin knowledge of GitHub recommended, can be run via GitPages			https://jupyterlite.rtfd.io/en/latest/try/lab	https://github.com/jupyterlite/jupyterlite	https://blog.jupyter.org/jupyterlite-jupyter-%EF%BB%BF-webassembly-%EF%BB%BF-python-f6e2e41ab3fa
PubPub	supports community-based collaborative drafting, review, and publication of scholarly work "using an integrated and iterative process"	yes	yes	no	yes	standalone	regular	? Marcell ?	docx, epub, html, markdown, odt, xml, txt, tex	PDF, DOC, markdown, epub, html, odt, txt, JATS, LaTeX	www.pubpub.org	github.com/pubpub/pubpub	www.pubpub.org
Overleaf	a collaborative cloud-based LaTeX editor used for writing, editing, and publishing scientific documents	yes	yes, either LaTeX-based writing or Rich Text available	yes	yes	standalone (self-host or SAAS)	Advanced / expert	junior sysadmin able to run docker image		PDF, LaTeX project as zip, optional bbl file for bibliography	https://overleaf.com	github.com/overleaf/overleaf	https://overleaf.com
Wikibooks		yes	limited	no		platform							

Figure 1: Overview of open source Collaborative Writing Tools considered in this study.
View this spreadsheet at https://tiny.cc/copim-collab-writing.

Git-based Collaboration

The world of collaborative software development was revolutionised by *Git,* which was developed by Linus Torvalds in 2005. Git was developed primarily for Torvalds' needs in maintaining one of the largest software collaborations ever—the Linux kernel. The approach and architecture of Git is also known and described as a distributed version-control system for tracking changes in source code during software development. The history of changes keeps its consistency and reproducibility by generating cryptographic hashes[28] for every change of the content. The whole repository with its history of changes is then cloned for every user of the system. Future synchronisations of a code repository could thus be done in between any of the software instances, which allows for a true so-called '[peer2peer topology]'. With Git's internal architecture and forking/branching mechanism,[29] Torvalds addressed another well-known problem in software collaboration: the issue of experimenting and introducing new features or even rewriting code. Creating new forks and branches of code, while providing synchronisation with the

[28] see https://en.wikipedia.org/wiki/Cryptographic_hash_function and DeLisle (2017) for an in-depth explanation of CryptPad's security features.

[29] cf. Git - Contributing to a project (n.d.)

others became much easier with the introduction of Git, resulting in drastic changes in the world of software development.

But this change did not happen more generally until GitHub (2008) made a proprietary web frontend for Git, enabling software developers to use it through a user-friendly web interface. GitHub also wrote an extensive documentation and a recorded series of screencasts explaining how to actually use Git (both in the command line and using one's own web user interface).

Now in its 14th year of existence, GitHub has become an essential part of the infrastructure of storage and history of changes in the development of open source software. While GitHub itself is now a commercial entity owned by Microsoft (Microsoft, 2018), throughout its history it did introduce a number of important and influential open source projects, namely: Atom (a text editor),[30] Electron (a web browser engine as desktop application),[31] and Jekyll (a static site generator).

Many powerful and popular text editors, such as Emacs and Vim,[32] which have been used for decades in software development, are also known to have a steep learning curve. However, due to again decades of customisation, these editors are often the first to provide support for new technologies—including technologies needed for scholarly research and writing. Many scientists in particular started to use Emacs or Vim because they wanted to have support for LaTeX, BibTeX and/or other bibliographic and citation management options.

The popularity of Atom, together with the ever-growing popularity of web technologies, fuelled the development of text editing components for the web (and for desktop via Electron). Some of the most powerful and elegant amongst these, such as CodeMiror and ProseMirror by Marijn Haverbeke, have supported a new generation of web-based text editors. These text editors share their underlying technology with ProseMirror and/or CodeMirror, and based on feedback from their users would, usually, iteratively grow into specific niche contexts.

Due to the latest developments of the CSS standard,[33] web browser engines are becoming increasingly an environment where well-structured content can be processed into a PDF publication with user control over the required layout (header, footer, margins) and pagination (links to specific pages etc.).

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[30] Atom was one of the first (desktop) text editors which used the web browser's rendering engine to process text. It allowed for customisation to be done in web technologies such as HTML, CSS, and Javascript, which have a much bigger developer base than any of the technologies needed to tweak and customise Vim and/or Emacs.

[31] Electron made easier installation/deployment of applications written in Javascript possible, which are initially mostly developed as a web app. Electron allowed for web development while getting the benefits of being installed as a desktop application, including having access to system services.

[32] EMACS and Vi/Vim are two of the longest-standing CLI-based text editor families, with differences in underlying philosophies regarding information processing, which in turn affects the way one uses these editors. Their evolution has been accompanied by long-standing disputes between programmers, with supporting factions of each editor engaging in heavy disputes around the benefits and shortfalls of each text editor over the other, which in the last thirty years led to a number of 'Editor Wars' in the open source community. For more information on this, see: https://en.wikipedia.org/wiki/Editor_war

[33] The Cascading Style Sheets (CSS) language is a way to describe the presentation features of a document, so to facilitate cross-platform representation of layout and styling properties that can then be read by reader applications, including web browsers and publishing tools. The CSS standard is a corner stone of the World Wide Web architecture. For more, see e.g. Blansit (2008).

Free software libraries that have been helping developers to integrate these features include paged.js, developed by Cabbage Tree Labs in their endeavour to provide the underlying technology for Editoria. Editoria is a full-stack[34] web-based publishing workflow, supported with its own underlying set of technologies, including Wax, which is an online rich text editor (component) based on ProseMirror and paged.js for its typesetting,[35] and the XSweet converter, which converts Microsoft Word documents to HTML (and vice versa).

Also relying on ProseMirror, and combining this with Vivliostyle, another established open source library for typesetting/rendering PDFs, is Fidus Writer — 'an online collaborative editor especially made for academics who need to use citations and/or formulas.' (Fidus Writer, n.d.) It proposes semantic editing, which is focused on the structure of the document rather than its look and feel. If the document is developed following the proposed semantic editing, Fidus Writer is able to render and export its output in different formats (HTML, Epub, LaTeX, Journal Article Tag Suite (JATS), docx, odt and PDF). It supports citations via drag'n'drop or copy-paste of BibLaTeX[36], easily exported from a reference manager such as Zotero and from text into the text editing area. Fidus Writer uses ProseMirror as its underlying text editing component, and Vivliostyle for typesetting and it can be easily installed locally (or on a server) as a docker container.

GitHub not only took care of educating people about and simplifying the use of Git, it also changed the way tutorials and documentation look. GitHub tried to encourage developers to add basic documentation for projects in their README.md files, to enable the repository page to open as a nicely designed HTML page with lists of the directories and files and below that the content of the Markdown formatted README.md file, processed automatically on GitHub's server. A well-designed front page, functioning as basic documentation, made software projects distinctive and more comprehensible if compared to other web frontends for version control systems.

In 2008, in its early days, GitHub introduced GitHub Pages based on the Jekyll static website generator. This allowed users —predominantly software developers at that time— a simple way to create a web site. The existence of themes would help people to choose the design and layout of their website, in a similar way as they would do in WordPress. The content creation in GitHub Pages was based on Markdown markup, a human readable syntax to structure the content of a given web page. The hierarchy of documents would follow the hierarchy of the directory structure. With a simple configuration file inside a repository, Jekyll would know how to create a menu for the website and render the rest of the website. The web site would be rendered as a simple HTML, CSS and maybe some basic Javascript, easily served by GitHub servers with no hassle for developers to maintain their project's website or any web server.

In 2011, GitLab started as a project that would be able to provide the efficiency of code management that had been introduced by Github while also allowing more control over where a project's code is

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[34] 'full-stack' here refers to the package containing all individual steps and granular tools to make use of the proposed workflow (as opposed to relying on external tools not included in the tool stack).

[35] Wax is currently under active development and installable via standard Javascript developers' tools. At the time of writing, it is not recommended to use Wax as a standalone text editor, but rather as part of a wider framework such as Editoria.

[36] cf. e.g. Lehman (2010).

stored. Today, GitLab is available in two distinct flavours; while its Enterprise Edition (GitLab EE) is the software-as-a-service (SAAS) branch, the Community Edition (GitLab CE) follows the open source route of making its codebase available for others so that everyone has the ability to run one's own self-hosted GitLab server. And similar to the earlier-described publishing interface of GitHub Pages, such a set-up is also possible with GitLab Pages.[37]

Next to the static site generators mentioned above—Jekyll, GitHub Pages, and GitLab Pages—the Jamstack approach has led to the rise of a plethora of static site generator variants,[38] including Hugo, which the COPIM project is using for its website. Many of these generators have eventually found their respective ways into open publishing workflows, for journals, books, as well as fully-digital, experimental modes of publishing.[39]

Annotation Tools

From its early days, the World Wide Web has been perceived as a medium enabling everyone and anyone to participate. It seemed that the limitations that Brecht found unacceptable for radio—as a public medium, to be merely *unidirectional*— and called for a transformation '*from a distribution apparatus into a communication apparatus*,' (Brecht & Silberman, 2020) could now finally be realized with the World Wide Web.

Following this perception, it was easy to imagine that anyone could write their prose in HTML and have it published online; that one could share a URL to a comment or threaded discussion; that one could do everything we are used to do in text and/or literary criticism, with the promise of endless possibilities to expand even further. In other words, the idea that anyone, not just experts, could edit any web page, was, at the time, inseparable from the idea of Word Wide Web. It was reflected in everything from WikiWikiWeb, created in 1995 by Ward Cunnigham as a user-editable website, to the 'View source' button, which was a prominent menu item in the original web browser written by Tim Berners Lee, a feature that since then has been inherited by all other web browsers.

The history of annotation tools proved once again that many simple and elegant ideas become difficult to implement and sustain once they are presented with the myriad of competing standards and technical specifications now existing in the real world.[40] Fully successful implementations of a standalone (open source) annotation layer on top of regular web standards is still to be developed.[41] Some of the challenges, affecting its promise to be useful, include ever-changing—or even disappearing—web pages which then, as a consequence, require a permanent online service to be able to consistently provide the annotated version of the web page. Archiving web pages for longer periods of time also became a non-trivial problem as nowadays the actual content of a web page does not only comprise static HTML content served by a web server anymore, which would lend itself more readily to

[37] see GitLab (n.d.)

[38] To date, jamstack.org lists 333 different static site generator variants at https://jamstack.org/generators/

[39] see e.g. Xie (n. d.), and Kim (2020) for a quick introduction, plus the Executable Book Project.

[40] see e.g. Marc Andreesen's first steps to test annotation with the Mosaic browser.

[41] although first steps have been taken with the formal introduction of a W3C's Web Annotation model in 2017.

referencing due to its static nature. Today, content is in many cases dynamically assembled by Javascript at the very last moment before a web page is displayed to the end user. And while in its daily role of simply surfing the Internet, the Javascript engine is known to be very demanding on CPU and RAM resources (even in the rather standard scenario of one single user's day-to-day web browsing on a powerful personal computer), it is still one of the most widespread frameworks used in web development.

The above-mentioned obstacles probably played an important role in the rise and subsequent demise of a number of annotation projects (both open source and proprietary). Having grown familiar with this kind of history, many recent projects—unfortunately—have decided to develop annotation as a feature that would only cover their respective projects' scope, with most of them not dedicating enough time to questions of interoperability. To provide one recent example, we can nowadays find a very good implementation of annotations on the PubPub platform created by MIT Media Lab and further developed and maintained by Knowledge Futures Group, with the limitation that annotations only work within that platform.

Still, there is a project which keeps up our collective hopes by the name of Hypothes.is — an open source project following the open standard developed by the W3C Web Annotation Working Group. The project gathered a scholarly coalition (Annotating All Knowledge (AAK)) — a group that includes more than seventy scholarly publishers and platforms. Their mission is to 'deploy annotations across much of scholarship.' A lot of other promising technologies were relinquished in the past because of a lack of widespread adoption (see, for example, RSS[42] or the above mentioned 'View source' button), meaning that this approach focusing on this specific segment of scholarly engagement, seems reasonable and hopefully sustainable.

Hypothes.is has a special partnership program with publishers and educational institutions which often results in new features and spin-off projects, including a collaboration with the ReadiumJS team to bring annotations to EPUBs, initiated by NYU Press.

A particularly interesting project worth mentioning is dokieli, a client-side tool for decentralised article publishing, annotations, and social interactions based on open Web standards and best practices (Capadisli et al., 2017). It is part of an ecosystem around project Solid, which has been initiated by Tim Berners Lee in 2016 with the aim 'to radically change the way Web applications work today, resulting in true data ownership as well as improved privacy.' [43]

Dokieli as a project is in its early stages of development and possibly a great candidate for experiments in annotations as part of a future (more) decentralised web. That said, for experimental publishing projects relying on a robust implementation and easy-to-use annotation system, our recommendation here would be to use Hypothes.is.

[42] see Holvoet (2006) or Wusteman (2004) for the early promises that RSS was envisioned to offer for libraries.

[43] see https://solid.mit.edu/ and https://solidproject.org/about.

Overview of annotation-specific standalone tools

The following (linked) table provides a list of current tool examples that can be used to facilitate annotation in one way or the other. In line with the earlier-introduced criteria, the list is limited to open source annotation tool solutions that are under active maintenance (i. e., updated in the recent past). The list thus does not feature earlier implementation examples such as those listed on the AnnotatorJS page, as AnnotatorJS has now been integrated as a core W3C standard, and many of the tools created from around 2012 to 2015 have either ceased to exist or are not seeing active maintenance and/or further development today.

ANNOTATION TOOLS	Short description	standalone or cross-platform	Collaborative / Multi-user annotation	Annotation as comment	Other forms of annotation? (beyond commenting)	Annotation export?	Level of expertise to use	Level of expertise to run as a web service	Output formats	Landing / Project page URL	Reposit
hypothes.is	browser-based tool for making annotations on web pages. Can be integrated with other tools / platforms, functions as an overlay on existing content (so the annotation source can live anywhere on the web)	standalone, cross-platform	yes	yes	no	yes, in development	regular user	junior sysadmin able to run docker image	HTML, JSON, TXT	web.hypothes.is/	github.co es
Recogito	a web-based environment for collaborative semantic annotation. It is open source software, and provides support for working with either text or image documents.	standalone	yes?	yes	yes	yes	regular user			https://recogito.pelagios.org	github.co s/rec
eMargin	an online collaborative annotation tool. You can highlight, colour-code, write notes and assign tags to individual words or passages of a text. These annotations can be shared amongst groups, generating discussions and allowing analyses and interpretations to be combined.	standalone	yes	yes	no	yes	regular / advanced		endnotes in doc; TEI-compliant XML	https://emargin.bcu.ac.uk/	https://so net/proje r
Annotation Studio	a suite of collaborative web-based annotation tools currently under development at MIT	standalone	yes	yes	yes, include images, videos, etc. Also supports tagging of annotations.		regular user (can be used in seminar/classroom settings)	work with PostgreSQL, Ruby, Node.js, NPM and MongoDB (next to Annotation Studio, the MIT Annotation Data		annotationstudio.org	github.cor udio/Anno Studio and github.cor udio/MIT- Annotatio Store
CATMA	With CATMA you can easily annotate your text just as you would do in a	standalone	yes	yes				junior sysadmin able to run git		catma.de	github.co /ca

Figure 2: Overview of open source annotation platforms considered in this study.
View this spreadsheet at https://tiny.cc/copim-annotation-overview.

As we described it in the first part of the report *Promoting and Nurturing Interactions with Open Access Books: Strategies for Publishers and Authors*, web-based annotation of digital books can be thought of as "a way to enrich a scholarly text through overlays and filters that sit on top of the text in order to show additional commentary and feedback." (Adema, Moore, et al., 2021a) On a technical level, annotation usually happens *in situ*, i.e., on top of an existing publication. With physical books, this usually happens in the margins of a book or manuscript. In the digital realm, though, this practice has proliferated: one common form of *indirect* annotation includes commenting at the end of a publication, separate from the main text body (see for example the comments section of blogging platforms such as *blogger* or *WordPress*) or what the W3C describes as being "maintained separately from annotation document" (W3C Digital Publishing Interest Group, 2014). Due to the detached nature of this form of annotation, such commentary tends to be more conducive to summative feedback.

Other more creative forms facilitate *direct* annotation by adding an extra (digital) layer over the original publication—a layer that often allows direct referencing of granular elements (specific words, segments,

paragraphs), thus enabling the reader to provide feedback via textual or multimedia means, or by adding contextual references such as metadata to enrich the underlying text, e.g., by creating a semantic network that sets a given publication in relation to other publications (hyperlinking, linked open data).

As discussed in more detail in Part 1 of our report on Interaction & Reuse, **Open Peer Review** is "an umbrella term for a number of overlapping ways that peer review models can be adapted in line with the aims of open science", and "a diverse cluster of interrelated yet distinct innovations that aim to bring open science principles like transparency, accountability, and inclusivity to the peer review process" (Ross-Hellauer, 2017).

Open Peer Review of scholarly books can be facilitated through a variety of means, many of which make use of commenting, annotation and/or versioning, depending on the chosen mode of interaction with the publication under review. More traditional forms of peer review maintained a separation between the review and the book under review, for example by using structured review forms, or book reviews published post publication. Digital annotation enables reviewers to write directly in or on the book under review, creating a more immediate and interactive experience.

In the first version of our COPIM Report *Books Contain Multitudes* (Adema, Mars, et al., 2021), we introduced a broad differentiation between *tools* and *platforms*: on the one hand, we consider tools that facilitate annotation as part of a larger collaborative environment that mainly focuses on the writing and publishing process (see platforms such as PubPub, CryptPad, etc. as discussed in the Collaborative Writing overview). On the other hand, there exist a variety of specialist platforms that focus on the facilitation of annotation as their main purpose, either within a given platform's boundaries (see e.g., Rescogito, CATMA), or as tools that can be used across platforms and independently from their base text's locations (e.g., Hypothes.is).

Platform-agnostic / Overlay Annotation Tools

The following tools are highlighted here because they work as platform-agnostic/-independent implementations. Adhering to the W3C's Open Annotation Guiding Principles, these tools facilitate an overlay service that can be used in conjunction with (almost[44]) every existing website, platform and/or digital document.

hypothes.is

hypothes.is is an open source project that has evolved out of the development work undertaken in the W3C Web Annotation Working Group. As Mars et al. write,

> "the project gathered a scholarly coalition (Annotating All Knowledge (AAK)[45]) — a group that includes more than seventy scholarly publishers and platforms. Their mission is to 'deploy annotations across much of scholarship' [and, to us] seems [a very] reasonable and hopefully sustainable [approach]. Hypothes.is has a special partnership program with publishers and

[44] if not actively discouraged, see e.g., Audrey Watters, 2017

[45] See https://hypothes.is/annotating-all-knowledge/ and the FORCE11 Annotating All Knowledge working group.

educational institutions which often results in new features and spin-off projects, including a collaboration with the ReadiumJS team to bring annotations to EPUBs, initiated by NYU Press" (Mars et al., 2021).

Hypothes.is is seeing wide-spread adoption across the Higher Education sector, and is featured in a variety of open publishing as well as open education projects to foster uptake of social annotation practices (see (Kalir & Garcia, 2021),[46] and Part 1 of our Interaction & Reuse report), which is supported on a technical level through the provision of a set of tools to help integrate hypothes.is functionality in a variety of other platforms also used for open access book publishing such as WordPress, Omeka, Open Monograph System etc.[47]

The platform-agnostic nature of hypothes.is makes the tool a versatile candidate for implementation in third-party environments. One example use case seems particularly noteworthy in this context. The High Integration of Research Monographs in the European Open Science (HIRMEOS) infrastructure project (also discussed in Part 1 of our Interaction & Reuse report)—sought to create a set of services to enhance re-use and integration of monographs into the larger European open science ecosystem. The project developed the **HIRMEOS Annotation service**, which facilitated open annotation for digital books for the publisher OpenEdition, based on hypothes.is. This service enhances capabilities towards creating annotations with an implementation of annotation-specific DOIs, and also enables storage and long-term preservation, re-use and sharing of the annotation record and associated data.[48] The chosen approach is described in more detail in (Bertino & Staines, 2019), as well as in the HIRMEOS Fact Sheet "Annotation Service for Digital Monographs". An overview of the books selected for their annotation and open peer review experiment has been made available online.

Another use case that deploys the hypothes.is model for annotation is **Fulcrum**. This publishing platform, which is developed by Michigan Publishing and focuses on the integration of a variety of multimedia content types such as interactive maps, datasets, 3D models, images, timelines, etc.[49] into digital open access books—while also taking into account the preservation of these content types—announced in 2019 that it would implement hypothes.is annotation features with books published by Lever Press on the Fulcrum platform, while also hinting at the possibility of making this feature available for other publishers' output on its platform at a later date.

PressBooks is another interesting use case to mention here because it integrates hypothes.is in their WordPress-based publishing platform via the annotation tool's excellent plugin to facilitate reader feedback. As PressBooks is also used as a platform to publish and disseminate OER textbooks, the integration of an annotation layer is also key to fostering student engagement with a given text.[50]

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[46] https://mitpress.mit.edu/books/annotation

[47] See https://web.hypothes.is/tools-plug-ins-and-integrations/

[48] See the HIRMEOS Annotation service technical specifications at 10.5281/zenodo.1343519

[49] For a presentation of Fulcrum's capabilities, see e.g., https://vimeo.com/390508545

[50] See https://pressbooks.org/ and https://pressbooks.directory/ for a wide selection of examples of research monographs as well as textbooks.

Pundit Annotator

Similar to hypothes.is, **Pundit Annotator** has existed for quite some time, and is currently in the early stages of being re-developed from scratch to ensure full implementation of the W3C Annotation standard that came into effect in 2017.[51] Conceived as a peer-review platform that leverages openly-available open access content via arXiv, OAPEN, and Knowledge Unlatched, and supported by the European Commission-funded TRIPLE project that is part of OPERAS,[52] Pundit will become a service offered as part of the GOTRIPLE platform, which in turn is conceived to play its part in the *European Open Science Cloud* ecosystem, and is thus seeing integration of multi-platform sign-on capabilities,[53] which will allow researchers to use the annotation service Pundit Annotator. While the project used to have its own open source repository, it is not clear at this point whether the new version 3.0 will also be made openly available.[54] What is also interesting is the fact that the development team hint at a collaboration with hypothes.is, which will potentially lead to more cross-platform interoperability in this space — with both tools soon being envisioned to enable re-use of each other's annotation data.

"Standalone" Fixed-ecosystem Annotation Platforms

Many annotation experiments in scholarly communication happened in the early 2010s, when the development of a key javascript library (AnnotatorJS) meant that an introduction of annotation functionality would be rather easy to facilitate. Nonetheless, the creation of an efficient and sustainable annotation environment was not trivial. The subsequent inclusion of the work that had informed AnnotatorJS into the W3C Annotation framework in 2017 was welcomed by the community, but also meant that much of the earlier javascript-based development work had become obsolete. As evidenced in the overviews provided by Max Planck Institute for the History of Science (MPIWG) and AnnotatorJS's own showcase page, many of the platforms that had been established during the early 2010s to enable annotation subsequently ceased active development, while a smaller subset decided to invest and re-build their platforms to implement the new W3C annotation standard.

In the next section, we take the opportunity to highlight a selection of specialist annotation tools and platforms that are used e.g. by linguists and historians. This will then be followed by a section that takes a closer look at three emerging platforms that follow an integrated approach to collaborative writing and annotation.

And e.g., https://guide.pressbooks.com/chapter/hypothesis-for-webbook-annotation-comments/ for Pressbooks' implementation of hypothes.is.

[51] See e.g., Grassi et al. 2013, and Di Donata et al., 2013.

[52] Pundit will become part of the GOTRIPLE platform, see https://www.youtube.com/watch?v=v9a6vDQYf4Q

[53] Login is possible via Facebook, Google, and the federated EGI service, which in turn offers identification via ORCiD, the eduGAIN consortium and its participating HEI's logins, GitHub, Bitbucket, LinkedIn, WeChat, Elixir, etc.

[54] See https://web.archive.org/web/20200910111747/https://github.com/net7/pundit2 for an archived version of Pundit 2.0.

At the time of writing this report (April 2022), Pundit's license page states that both "Pundit Annotator and Annotator Pro are released under a AGPL 3.0 license".

Recogito

An initiative by the Pelagios Network, and originally having focused on geographic annotation of maps, Recogito has since evolved into a powerful interactive annotation tool for text and image documents, support International Image Interoperability Framework (IIIF) standard. The tool supports collaborative and semantic annotation, allowing a whole team to work on a given text, image or map, and to connect individual data points such as places, characters, and events. Honouring an open data approach, all of the annotation data collected in Recogito can also be exported in open formats for re-use in other tools and platforms.

Recogito has been awarded *Best Open Source Software* in the Open Publishing Awards 2019 and *Best DH Tool* in the Digital Humanities Awards 2018.

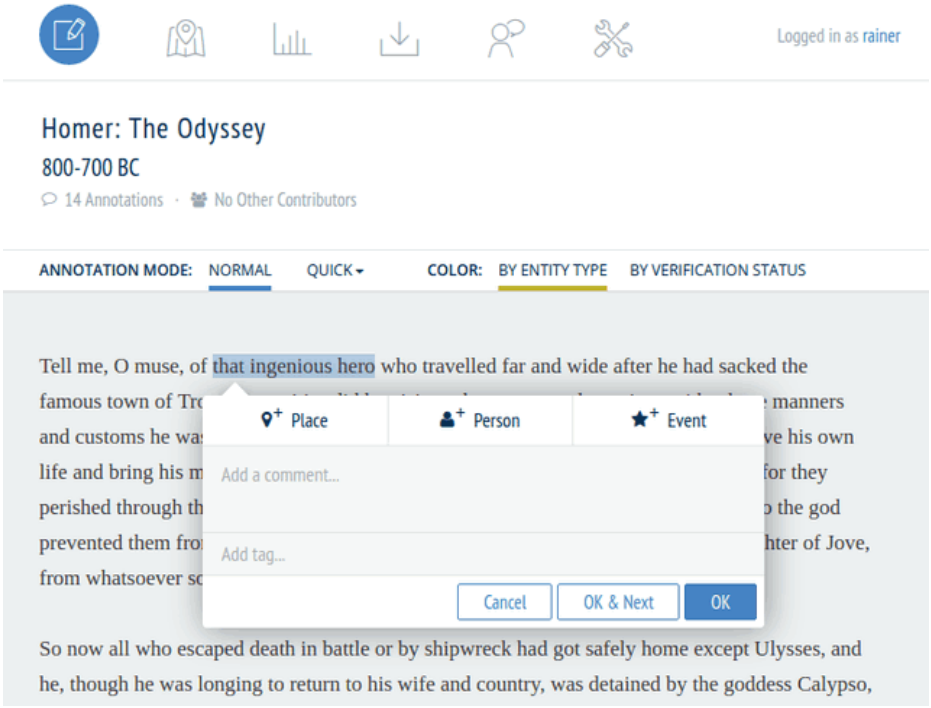


Figure 3: Annotation within Recogito.

CATMA

Looking back at more than a decade of development at University of Hamburg and TU Darmstadt, Germany, CATMA — short for "Computer Assisted Text Markup and Analysis" — supports specialist semantic annotation of text. It is being used for linguistic corpus analyses, supports export of its annotation collections to Text Encoding initative (TEI)-conformant XML, and relies on a git-based backend and workflow.

Figure 4: Source: CATMA.

Annotation Studio

Hosted and developed at MIT School of Humanities, Arts & Social Sciences' Active Archives Initiative (formerly MIT Hyper Studio), Annotation Studio boasts a suite of collaborative annotation tools. With a Digital Humanities background in mind, Annotation Studio offers an approach to TEI-compliant annotation without making prior knowledge of close textual analysis practices or specifics arount TEI a requirement. Next to facilitating direct interaction with a text through annotation, Annotation Studio also offers a visual approach to map reader engagement with a text through its Heatmap and Reader Trajectories panes.

They write:

> by enabling users to tag texts using folksonomies rather than TEI, Annotation Studio allows students to [discover] how literary texts can be opened up through exploration of sources, influences, editions, and adaptations.
>
> *Source*: MIT Hyper Studio, n.d.

While annotation-specific platforms such as those outlined here are definitely worthy of further in-depth exploration, we would like to highlight three emerging platforms that follow an integrated approach to collaborative writing and annotation and that also specifically accommodate books or long-form texts. They focus on the social aspect of collaborative interaction with the text and thus aim to provide a seamless experience across many steps of the publishing workflow.

Scalar

Scalar, the multimedia publishing platform hosted by the Alliance for Networking Visual Culture (ANVC), provides options to annotate video, audio, images, source code, and text. By establishing relational links between various kinds of content, Scalar introduces an elaborate taxonomy to facilitate a wide range of potential connections between annotations and base content. In practice, this means that one can establish links between existing content types in a Scalar book , or add new content (a note, a video commentary, etc.) to an existing content type.[55] Scalar also features an API through which—as the manual states—"You can mashup your Scalar content with other data sources, build your own visualizations, or create completely new interfaces for your materials."[56] While such a feature might not be relevant for every user, it is noteworthy because it offers possibilities for re-using Scalar content outside of the platform.

The digital project *Bodies and Structures 2.0*, led by Kate McDonald and David Ambaras, has used Scalar to develop a fascinating project and digital collection mapping seventeen spatial histories of modern East Asia.

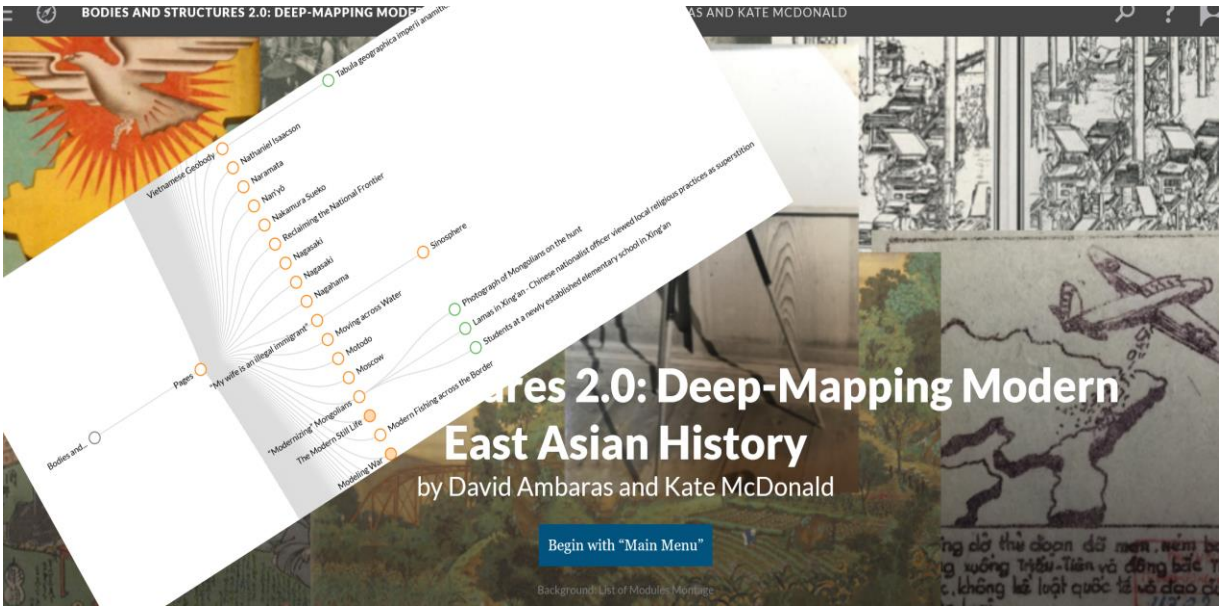


Figure 5: Screenshot and Lenses visualisation:
Bodies and Structures 2.0: Deep-Mapping Modern East Asian History on Scalar.

And Claude McKay's *Early Poetry (1911-1922): a Digital Collection*, developed out of a LeHigh University Digital Humanities seminar led by Amardeep Singh and Edward Whitley, uses Scalar to visualize relationships between the poems McKay published through 1922.

[55] See Scalar's User Guide, particularly sections "Annotating Media", and "Whole-Part Relationships"

[56] See Scalar User Guide, "Working with the API"

For those interested in using Scalar as a platform for their teaching, we'd recommend Dixon's article "Imagining the Essay as Digital Assemblage: Collaborative Student Experiments with Writing in Scalar." (Dixon, 2016) and this Introduction to Scalar, provided by University of Illinois at Urbana-Champaign.

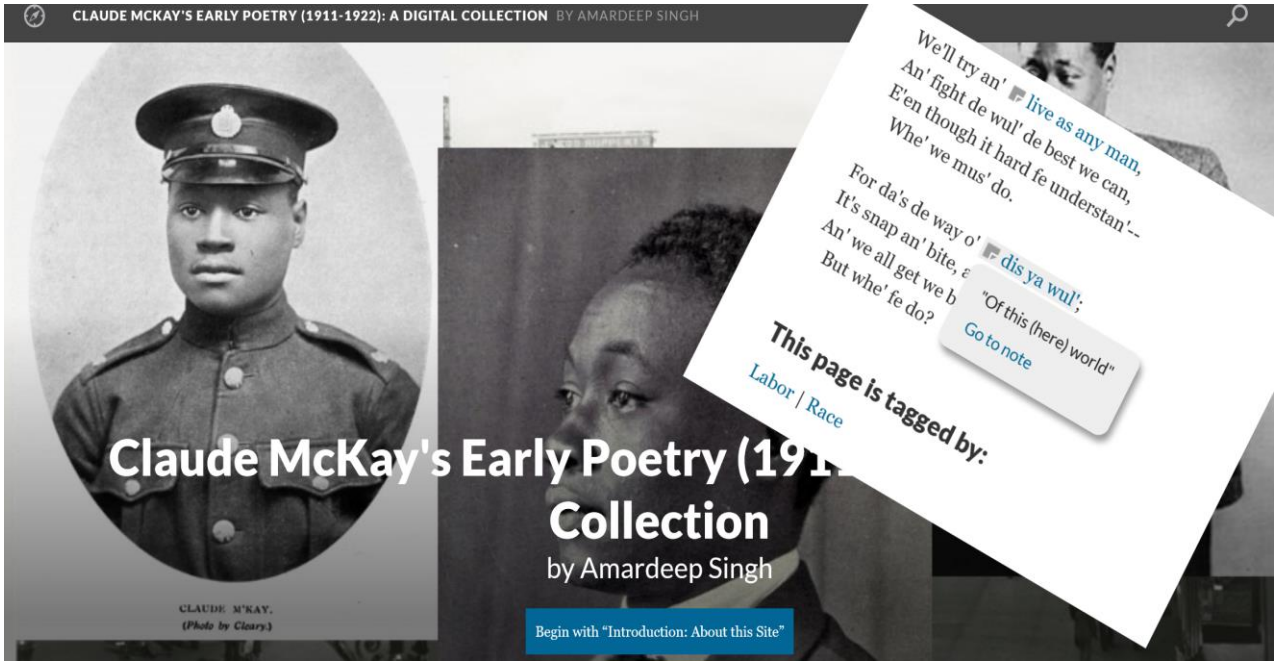


Figure 6: Screenshot of landing page and digital note on McKay's poem "Whe' Fe Do?" in Claude McKay's Early Poetry (1911-1922): A Digital Collection on Scalar.

Manifold

Developed as a successor to the *Debates in the Digital Humanities* hybrid print/digital book publishing platform (Kasprzak & Smyre, 2017), **Manifold** leverages the social aspect of collaborative interaction through its annotation Reading Groups. As the developers note, Reading Groups "are a way for readers to annotate and comment on Texts as a cohort and is geared toward classroom and peer-review use cases." (Manifold, n.d.) Athabasca University Press and University of Minnesota Press are already using bespoke Manifold instances to foster engagement with their published books,[57] and pilot projects between the University of Washington Press and University of Washington Libraries, at City University New York (CUNY), and at Affordable Learning Georgia, are using the platform to explore the potential of extending student engagement with open texts through social collaborative practices, including annotation.[58]

[57] Examples considered here include annotations added to Parikka's *The Anthrobscene* (2014) here, to Boluk and LeMieux's *Metagaming* (2017) here, and to the Middlemarch 150th Anniversary Symposium's collaborative edition (2021) here. An overview of the more than 30 presses and publishing initiatives can be found on Manifold's Community page

[58] See e.g., CUNY's Quick Guide: Getting Started for Students, or University of Washington Libraries' Manifold Pilot Guide.

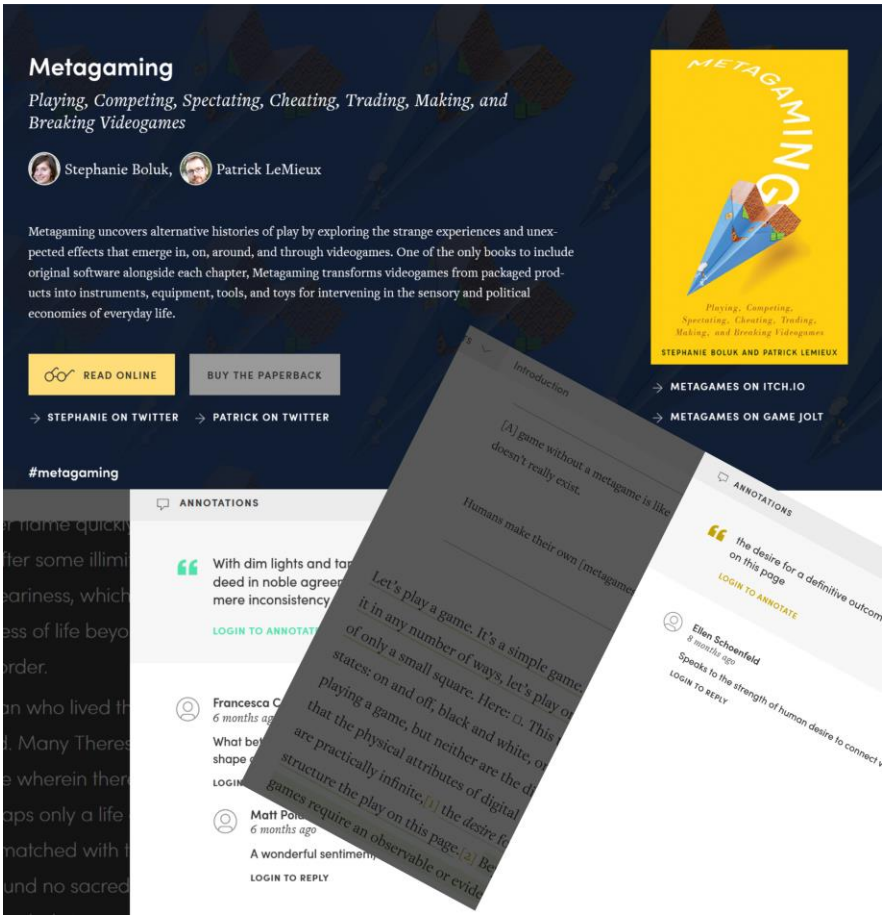


Figure 7: Manifold annotation and peer review cases: Metagaming (2017) and the Middlemarch 150th Anniversary Symposium collaborative edition project (2021).

Figure 8: Whitney Trettien's recent book publication Cut/Copy/Paste: Fragments from the History of Bookwork (2021), on Manifold.

PubPub

As outlined in more detail in Mars et al. 2021, **PubPub** is a collaborative writing platform that also integrates an annotation layer to facilitate commentary and peer review. In an exemplary **Open Peer Review process via PubPub**, Remi Kalir and Antero Garcia made the manuscript of their—now published—*Annotation* volume, available online via the PubPub platform, and invited feedback via in-platform annotations and comments from the wider scholarly community.

Figure 9: Sample screenshot of Kalir & Garcia's Annotation prepublication manuscript on PubPub.

In a similar vein, with her preprint version released as open access text on PubPub, Sasha Costanza-Chock's *Design Justice: Community-Led Practices to Build the Worlds We Need* invites readers to share thoughts and comment on her MIT Press monograph that has been published under the same title in 2021.

And the *Frankenbook* project, presented by the Center for Science and the Imagination at Arizona State University, has likewise employed PubPub's annotation capabilities to engage in a "collective reading and collaborative annotation experience" to reframe Mary Wollstonecraft Shelley's original 1818 text of *Frankenstein; or, The Modern Prometheus*.

Figure 10: Screenshot of https://www.frankenbook.org/

As a caveat, it remains to be seen if PubPub's annotation framework will, in the future, allow export and re-use of its annotation-specific data so as to more formally comply with the Open Annotation Guiding Principles[59] and corresponding calls to make peer review data available independently from its publishing platform. Next to that, for the authors of this report, the mandatory sign-up / registration step that is required prior to gaining access to the interaction options of a given base text in PubPub poses an additional barrier that might deter some users from interacting with the text. Nonetheless, PubPub's support of annotation and peer review on the technical level of the tool and its affordances, but also on the level of fostering social interaction and community-building on and with PubPub (e.g., through the *Commonplace* publication outlet, led by Knowledge Futures Group, the community tasked to provide development of and user support for the platform)[60] makes for a rather convincing case of an emerging publishing ecosystem.

CommentPress

Leveraging a **WordPress** + **CommentPress** plugin setup that had been pioneered by The Institute for the Future of the Book (If:book, (Fitzpatrick, 2007a)), Jason Mittell's Media Studies publication *Complex TV* had been publicly available for close to two years prior to its publication via If:book's MediaCommons platform, and the manuscript has subsequently undergone a thorough "Peer-to-Peer Review"(Fitzpatrick, 2007b) process together with publisher NYU Press. Although it has already been published nine years ago, Mittell's book still is an interesting exemplar to consider here because it also conceptually combines a variety of open source platforms, drawing on Scalar to provide additional digital material to support the arguments made in the main publication.

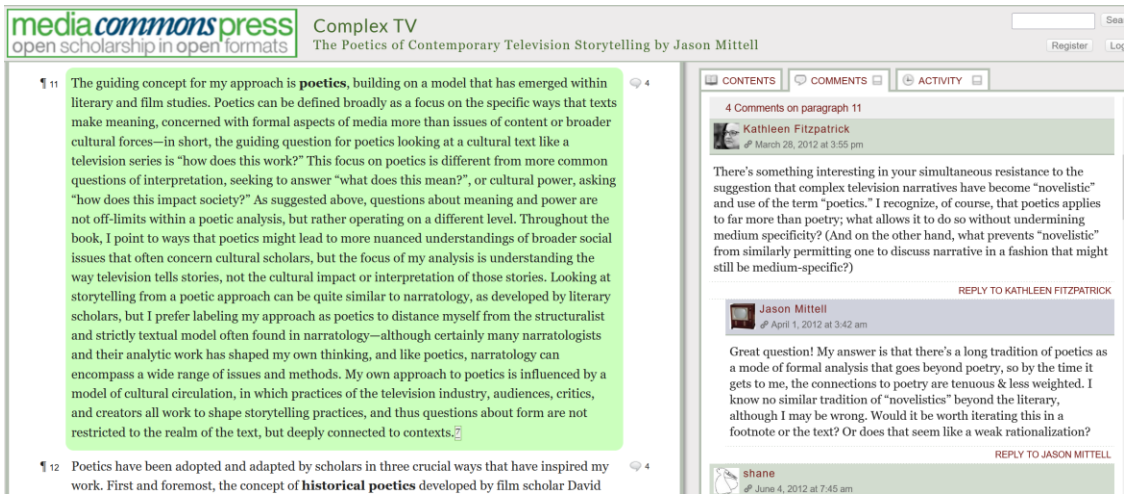


Figure 11: Review platform of Jason Mittell's Media Studies publication Complex TV, powered by MediaCommonsPress. The manuscript has been published in 2015 with NYUPress.

[59] "The effort focuses on interoperability for annotations. Its goal is to allow the sharing of annotations across clients, servers, and applications. It will not, in any way, prescribe user interfaces, internal architectures or internal data structures." (W3C)

[60] See e.g., the excellent *Pathways to PubPub* document that provides guidance and illustrative examples for MIT Press authors and editors using the platform for their publishing workflows.

Similar processes have been employed for example by McKenzie Wark for her monograph GAMER THEORY, by Jack Dougherty and Kristen Nawrotzki for their 2011 open review volume of *Writing History in the Digital Age* (published in 2013 by University of Michigan Press), and again by Kathleen Fitzpatrick, who had also used this process to invite feedback on her book *Planned Obsolescence* (2011) via MediaCommons, while her more recent book *Generous Thinking* (Fitzpatrick, 2019) has been made available with a more up-to-date CommentPress setup hosted at Humanities Commons (see below).

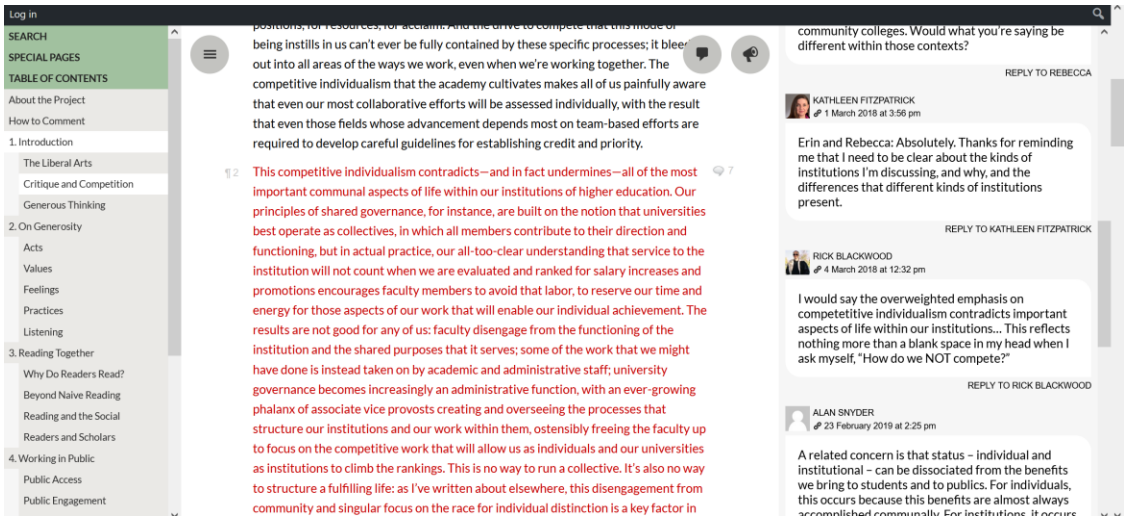


Figure 12: Humanities Commons / CommentPress-based review process for Kathleen Fitzpatrick's monograph Generous Thinking, published with Johns Hopkins University Press in 2019.

RavenSpace

RavenSpace is a collaborative publishing space developed by University of British Columbia Press in close collaboration with University of Washington Press, and focuses on digital workflows to extend the collaborative writing experience towards the provision of a robust peer review workflow that can also facilitate what they label "Community peer review". Through Community Peer Review, Ravenspace

> "seeks to extend the collaborative relationships of research and authoring into the publication process and to publish works that are meaningful and relevant for distinct communities of readers, both inside and outside academia, and specifically Indigenous peoples. It recognizes that expertise resides in many places and that publications benefit from Indigenous consultation or review beyond collaborative authorship. Because of the varied nature of collaborative relationships and the diversity in Indigenous customs, laws, and approaches to intellectual property and cultural heritage uses, flexibility is essential; the form of review and consultation responds to the nature of community protocols and the needs of each publication." (*Publish With Us – RavenSpace*, 2021)

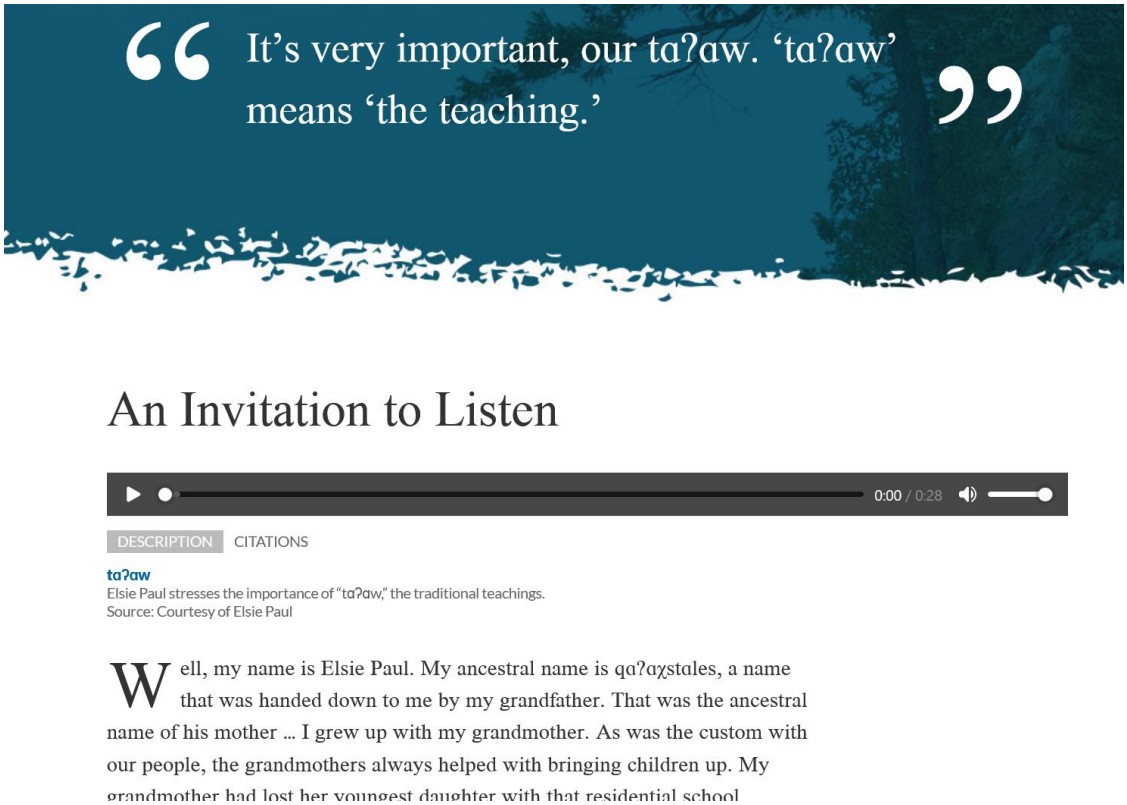


Figure 13: Ravenspace - *As I Remember It: Teachings (ʔams tɑʔɑw) from the Life of a Sliammon Elder*.

Mukurtu

Developed by the Center for Digital Scholarship and Curation at Washington State University, **Mukurtu** is an open-source Content Management System and publishing and archiving platform that has "the unique needs of Indigenous communities, libraries, archives, and museums in mind." Relying on Drupal as its host system, Mukurtu has developed a strong community over the years, which is organised via a network of regional and local "Hubs and Spokes" (Christen et al., 2017) that fosters exchange of situational knowledge and practices. While it is not a book publishing platform per se, we are including it here as an interesting example of how communities can collaborate on digital collections and experiment with intriguing, novel ways to present, share and curate content.

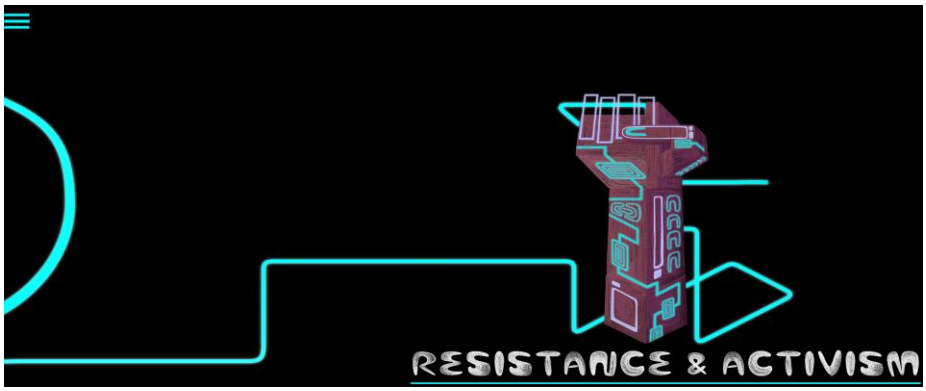


Figure 14: Gather project, State Library of New South Wales

Remix and Adaptation

While still focusing on the technical implementation of remix and adaptation via tools and platforms, we will, in the following paragraphs, also look at examples of academic publishing communities that are working with these tools to put the promise of remixing long-form publications such as monographs into actual practice.

Licensing and Copyright

A vital point towards enabling re-use and interaction with one's content is to create amenable conditions for engagement. On the level of licensing, this is usually done by applying open licenses to one's work.

In a world defined by copyright law, open licenses are a good way to signal what kinds of re-use and interaction are possible.

Licenses are the most widespread way to signal what kinds of re-use and interaction are permitted by the original content creator / author. Releasing a book under an open license ensures that those interested in re-using your book (or contents thereof) would not have to reach out to you to ask for permission to do so.

Creative Commons

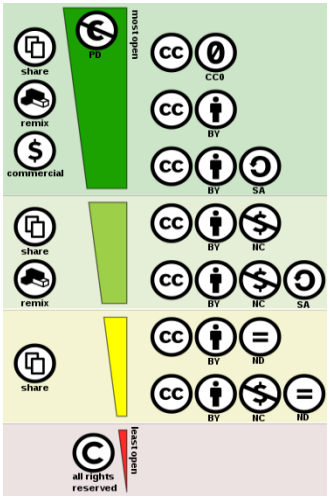


Figure 15: Shaddim; original CC license symbols by Creative Commons, CC BY 4.0, via Wikimedia Commons.

Creative Commons licenses are a way to express different levels of such permissions, with the general rule being that those licenses with the least exceptions are those most amenable to fostering re-use. An additional benefit of Creative Commons licenses is that each license comes in three versions — a clearly understandable summary of the terms ("human readable"), the license text ("lawyer readable"), and the metadata ("machine readable"). For more on the permissiveness of the six main Creative Commons flavours, see the infograph on the left.

Licensing Tools for Easy Attribution

Creative Commons license chooser

- https://creativecommons.org/choose/
- https://chooser-beta.creativecommons.org/

The CC license chooser enables authors and contributors to select a Creative Commons license that appropriately reflects their intended use cases. Through a set of questions, the tool can identify main criteria and permissions that an author wants to grant, and then presents the creator with a variety of media-specific license attribution options with corresponding copy&paste templates (text-based, text/hyperlink, or HTML code that includes machine-readable licensing metadata)

Wikipedia & Wikimedia Commons attribution tool

- https://lizenzhinweisgenerator.de/?lang=en
- https://github.com/wmde/Lizenzhinweisgenerator
- https://commons.wikimedia.org/wiki/Commons:Attribution_Generator

Flickr image re-use attribution generators

- Michael Hex, ImageCodr: https://www.imagecodr.org/
- Alan Levine, Flickr CC Helper: https://cogdog.github.io/flickr-cc-helper/

Guidelines and Tools for Open Licensing:

- Barnes (2018) Copyright and licensing – what do I need to know? https://doi.org/10.11647/OBP.0173.0090
- Borwick, C. (n.d.). *What is open access: Open access book publishing*. https://library.bath.ac.uk/open-access/whatisopenaccess
- *Considerations for licensors and licensees—Creative Commons*. (n.d.). https://wiki.creativecommons.org/wiki/Considerations_for_licensors_and_licensees#Make_sure_you_understand_how_Creative_Commons_licenses_operate
- Kreutzer, T. (2014). Open Content: A practical guide to using creative commons licences. German Commission for UNESCO.
- Collins, Ellen, Milloy, Caren, Stone, Graham, (2013) *Guide to Creative Commons for humanities and social science monograph authors.* Eds. James Baker, Martin Paul Eve,and Ernesto Priego. OAPEN-UK and Jisc Collections. https://eprints.hud.ac.uk/id/eprint/17828/
- OAPEN. (n.d.). *Funder requirements: Licensing*.
- UK Copyright Literacy. (n.d.). *Copyright guidance from UK universities and colleges*. https://copyrightliteracy.org/about-2/copyright-guidance-from-uk-universities/
- Specifically relating to the German legal system, which is not always compatible with the anglophone approach to Creative Commons licensing, see Kreutzer, T., & Lahmann, H. (2021). *Rechtsfragen bei Open Science—Ein Leitfaden* (2. Aufl.). Hamburg University Press. https://doi.org/10.15460/HUP.211

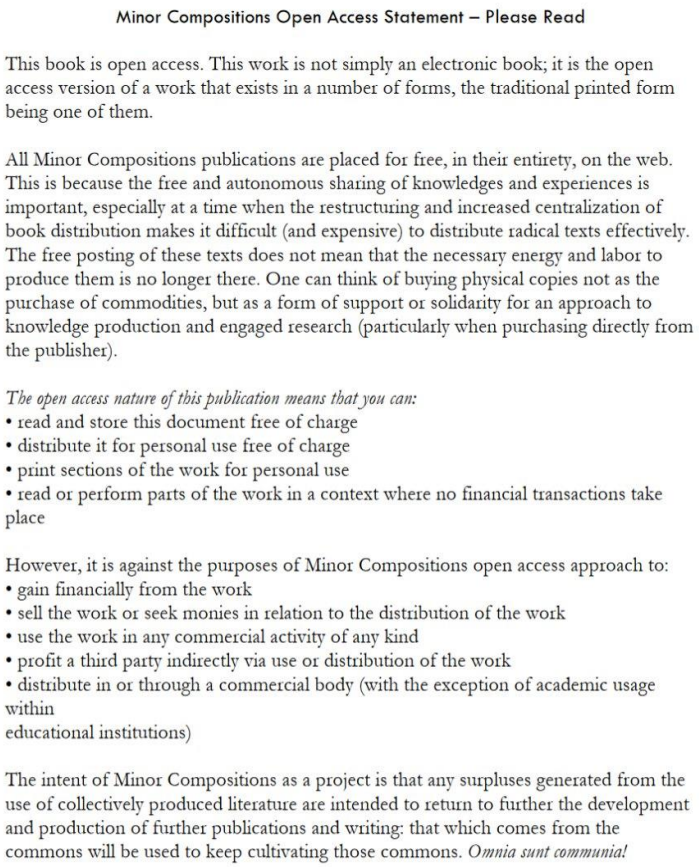
Alternative Licensing Models: CopyLeft, CopyFarLeft, CopyFair, CC4R, Traditional Knowledge

Alternative ways to license your work that are more critical of traditional conceptions of copyright include **CopyLeft** and **CopyFarLeft** licenses. The P2P Foundation's Wiki provides concise overviews of both at

- https://wiki.p2pfoundation.net/Copyleft
- https://wiki.p2pfoundation.net/copyfarleft

Copyleft licenses have evolved out of Free, Libre and Open Software (FLOSS) advocacy and related licenses such as the GPL. The **Copyleft.org project** has a concise guide on the many aspects of copyleft licensing.

To provide an example of Open Access books using copyleft licensing, we would like to highlight the book catalogue of the publisher Minor Compositions: all of Minor Compositions' books make use of a tailored variant of a copy(far)left licensing approach.



Minor Compositions Open Access Statement – Please Read

This book is open access. This work is not simply an electronic book; it is the open access version of a work that exists in a number of forms, the traditional printed form being one of them.

All Minor Compositions publications are placed for free, in their entirety, on the web. This is because the free and autonomous sharing of knowledges and experiences is important, especially at a time when the restructuring and increased centralization of book distribution makes it difficult (and expensive) to distribute radical texts effectively. The free posting of these texts does not mean that the necessary energy and labor to produce them is no longer there. One can think of buying physical copies not as the purchase of commodities, but as a form of support or solidarity for an approach to knowledge production and engaged research (particularly when purchasing directly from the publisher).

The open access nature of this publication means that you can:
• read and store this document free of charge
• distribute it for personal use free of charge
• print sections of the work for personal use
• read or perform parts of the work in a context where no financial transactions take place

However, it is against the purposes of Minor Compositions open access approach to:
• gain financially from the work
• sell the work or seek monies in relation to the distribution of the work
• use the work in any commercial activity of any kind
• profit a third party indirectly via use or distribution of the work
• distribute in or through a commercial body (with the exception of academic usage within
educational institutions)

The intent of Minor Compositions as a project is that any surpluses generated from the use of collectively produced literature are intended to return to further the development and production of further publications and writing: that which comes from the commons will be used to keep cultivating those commons. *Omnia sunt communia!*

Figure 16: Copyleft notice on Stevphen Shukaitis book *Combination Acts: Notes of Collective Practice in the Undercommons*, published 2017 with Minor Compositions.

Copyfair licenses

Copyfair licenses comprise a particular subclass that focuses on equitable sharing of resources. Most notably among those is the Peer Production License which has been conceived in the context of the Open Cooperativism movement as a derivative of the Attribution-NonCommercial-ShareAlike Creative Commons license. The Amsterdam-based Institute of Network Cultures' book series *Network Notebooks* has been published under a Peer Production License, see e.g. Dmytri Kleiner's "The Telekommunist Manifesto".

Figure 17: Dmytri Kleiner's "The Telekommunist Manifesto", published under a Peer Production License in the Institute of Network Cultures' book series *Network Notebooks*.

Other approaches to copyleft licensing that focus on fair distribution of value include the CopyFair License and the Fair Source License.

And copyleft licenses that are usually found in software development such as MIT & GPL3 have also been applied to Open Access books, see e.g. the Berlin-based Mute Magazine's **Open Mute Press** collaboration with Open Humanities Press on After.Video Assemblages,

> A video book - paperback book and video stored on a Raspberry Pi computer packaged in a VHS case.
>
> Also available as online video and book PDF download.
> Video and PDF - http://after.video/assemblages
>
> Source: https://www.metamute.org/shop/openmute-press?page=1%2C0

CC4r - Collective Conditions for Reuse

Understood as a critique on conceptions of property and copyright of the neoliberal system, the Collective Conditions for Reuse (CC4r) license is a reimagined copyleft license specifically geared towards reuse or remix scenarios in which collaborators do not want to "contribute to oppressive arrangements of power, privilege and difference." Constant, the Brussels-based non-profit organisation

behind this license, notes that "CC4r was developed for the Constant work session Unbound libraries (spring 2020) and followed from discussions during and contributions to the study day Authors of the future (Fall 2019). It is based on the Free Art License and inspired by other licensing projects such as the (Cooperative) Non-Violent Public License and the Decolonial Media license" (Constant, 2020).

We also want to highlight that copyleft licences are not the only licensing frameworks available. For example, **Traditional Knowledge** (TK) seeks to address the diversity of Indigenous needs to retain control of their cultural heritage and resources.

Traditional Knowledge licenses

Inspired by Creative Commons, Traditional Knowledge (TK) seeks to address the diversity of Indigenous needs to retain control of their cultural heritage and resources. TK "embraces the content of knowledge itself as well as traditional cultural expressions, including distinctive signs and symbols associated with TK." Traditional Knowledge licenses are

> "a tool for Indigenous communities to add existing local protocols for access and use to recorded cultural heritage that is digitally circulating outside community contexts. The TK Labels help non-community users of this cultural heritage understand its importance and significance to the communities from where it derives and continues to have meaning"

Source: (Program for Open Scholarship and Education, 2021).

TK licensing works on two levels: through Licenses & Labels. While TK Licenses function in a similar way to their Creative Commons equivalents, TK Labels provide contextual information pertaining to the community it originates from.

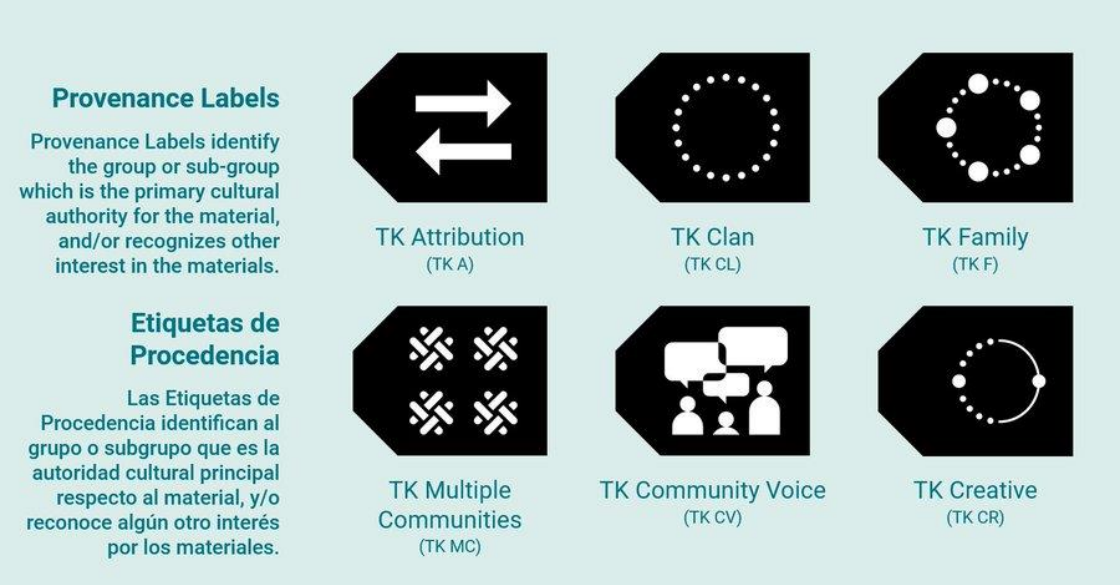


Figure 18: Provenance Labels identify the group or sub-group which is the primary cultural authority for the material, and/or recognizes other interest in the materials. Source: https://localcontexts.org/labels/traditional-knowledge-labels/.

Figure 19: Protocol Labels outline traditional protocols associated with access to this material and invite viewers to respect community protocols. Source: https://localcontexts.org/labels/traditional-knowledge-labels/

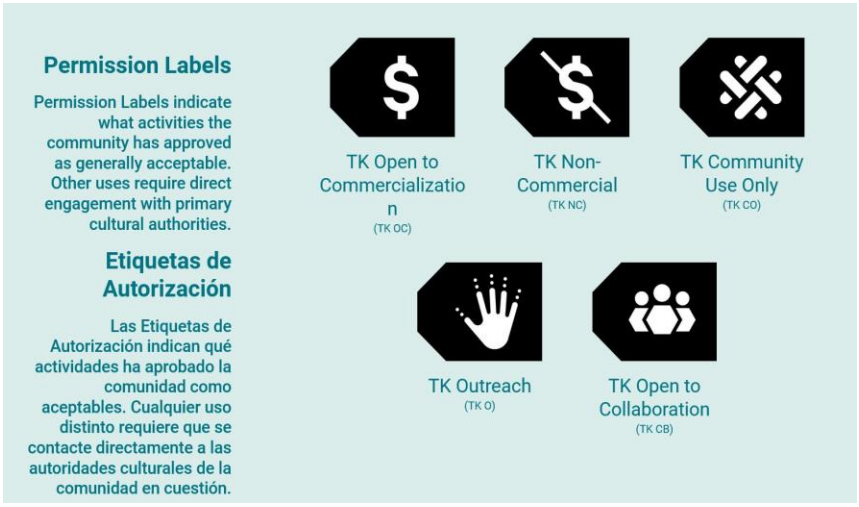


Figure 20: Permission Labels indicate what activities the community has approved as generally acceptable. Other uses require direct engagement with primary cultural authorities. Source: https://localcontexts.org/labels/traditional-knowledge-labels/

The University of British Columbia provides further details on the uses of Traditional Knowledge licenses.

To highlight an Open Access book that makes use of TK Labels, we would like to recommend taking a look at the wonderful RavenSpace publication *As I Remember It*, a collaboration with Elder Elsie Page, Davis McKenzie, Paige Raibmon, and Harmony Johnson.

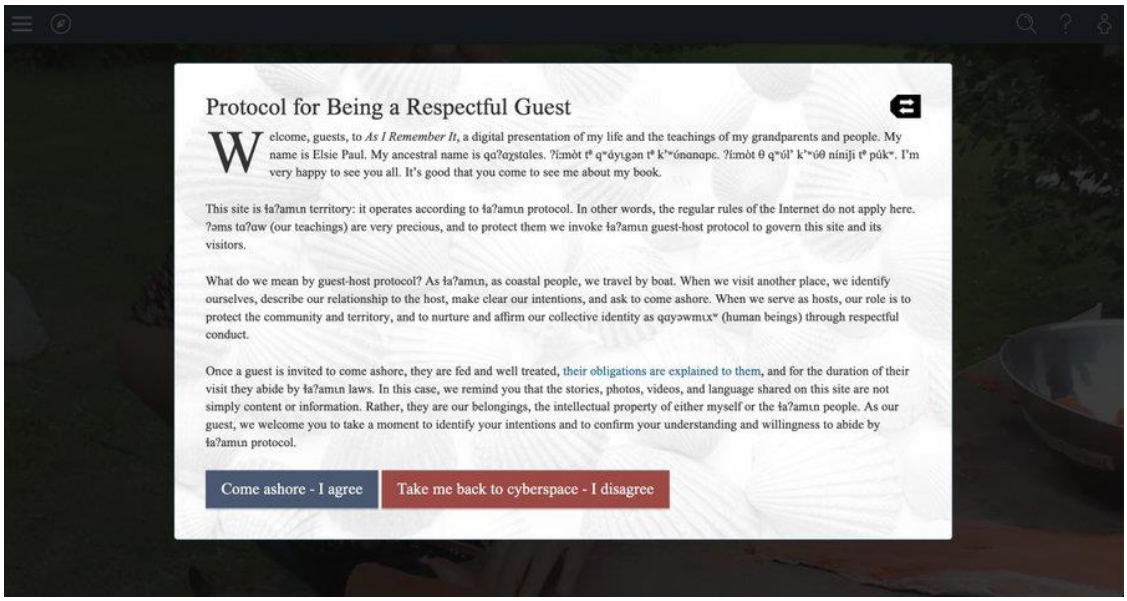


Figure 21: Screenshot of the invitation addressing the reader of 'As I Remember It' to enter the site following a "Protocol for Being a Respectful Guest". Source: http://publications.ravenspacepublishing.org/as-i-remember-it/index

Semantic Web, Linked Data, Translatability & Citations

Ideally, publishing with open licenses as well as in a machine-readable format (not only PDF) will help to make your research more accessible to human and nonhuman and/or machinic readers (see e.g. (Adema, 2019).

Openly licensed and machine-readable text can then also be accessed by algorithms that can e.g., scan for semantic features and turn text into data, seek for citations and emerging patterns, or make your text translatable. Lots of work around that topic has been happening in the context of the CLARIN and DARIAH infrastructures, and particularly by the FutureTDM project.

Likewise, making citation data available in an open and machine-readable way is yet another way to invite re-use of one's work.

As Frosio notes,

> "empirical data collection and processing through advanced computational tools—that define research in digital humanities—may empower a discourse about the complex matrix of influence, borrowing, and reuse that characterizes creativity at large as "remix" creativity, while defying entrenched modern assumptions on the immutable, individualistic nature of creativity" (Frosio, 2021).

That said, while the practice of using open references and citations in one's output is seeing considerable uptake particularly in the STEM fields (see e.g., Hutchins, 2021), an adaptation of workflows that make reference and citation datasets openly available is still lagging behind in the world of the Humanities and Social Sciences.

I4OC & OpenCitations

Leveraging the principles of open data through PIDs and Semantic Web (Linked Data) technologies, the Initiative for Open Citations (I4OC) and OpenCitations seeks to collect citation data to create semantic, machine-readable networks that link citations and references across individual research outputs. Implementing OpenCitation standards in one's monograph creation workflow can be another way to improve and invite re-use of original content, as machine-readable, standardised metadata promises to make proper attribution of sources more readily available. As the provision of open reference lists plays an important part in the Declaration on Research Assessment (DORA), this practice will surely see more wide-spread uptake across HE institutions and publishers against the backdrop of the larger move towards facilitating uptake of practices on the spectrum of Open Science and Scholarship. For a very recent discussion of the benefits and obstacles regarding OpenCitations, see e.g., (Ayers & Klein, 2021).

CARE Principles for Indigenous Data Governance

Linked to the use of TK licenses and labels, the **CARE Principles for Indigenous Data Governance** provide guidance on re-focusing data provision towards a more responsible and ethical approach that complements the FAIR principles. As the Global Indigenous Data Alliance (GIDA) writes:

> Existing principles within the open data movement (e.g. FAIR: findable, accessible, interoperable, reusable) primarily focus on characteristics of data that will facilitate increased data sharing among entities while ignoring power differentials and historical contexts. The emphasis on greater data sharing alone creates a tension for Indigenous Peoples who are also asserting greater control over the application and use of Indigenous data and Indigenous Knowledge for collective benefit.
>
> This includes the right to create value from Indigenous data in ways that are grounded in Indigenous worldviews and realise opportunities within the knowledge economy. The CARE Principles for Indigenous Data Governance are people and purpose-oriented, reflecting the crucial role of data in advancing Indigenous innovation and self-determination. These principles complement the existing FAIR principles encouraging open and other data movements to consider both people and purpose in their advocacy and pursuits.
>
> Source: Global Indigenous Data Alliance (GIDA), 2019; and Ruckstuhl, 2022.

Figure 22: Source: https://www.gida-global.org/care

Open Syllabus

One text and data mining (TDM) application use case of an open citation graph has evolved out of a project hosted at Columbia University's Group for Experimental Methods in the Humanities: the Open Syllabus project collects and scans openly-shared course syllabi for references, and makes the connected dataset and generated visualisations available via its dedicated not-for-profit platform at https://opensyllabus.org/. All scholarly references included in the scanned syllabi can be mapped across research fields (see e.g. the below visualisation of the most prominent texts across syllabi for media studies).

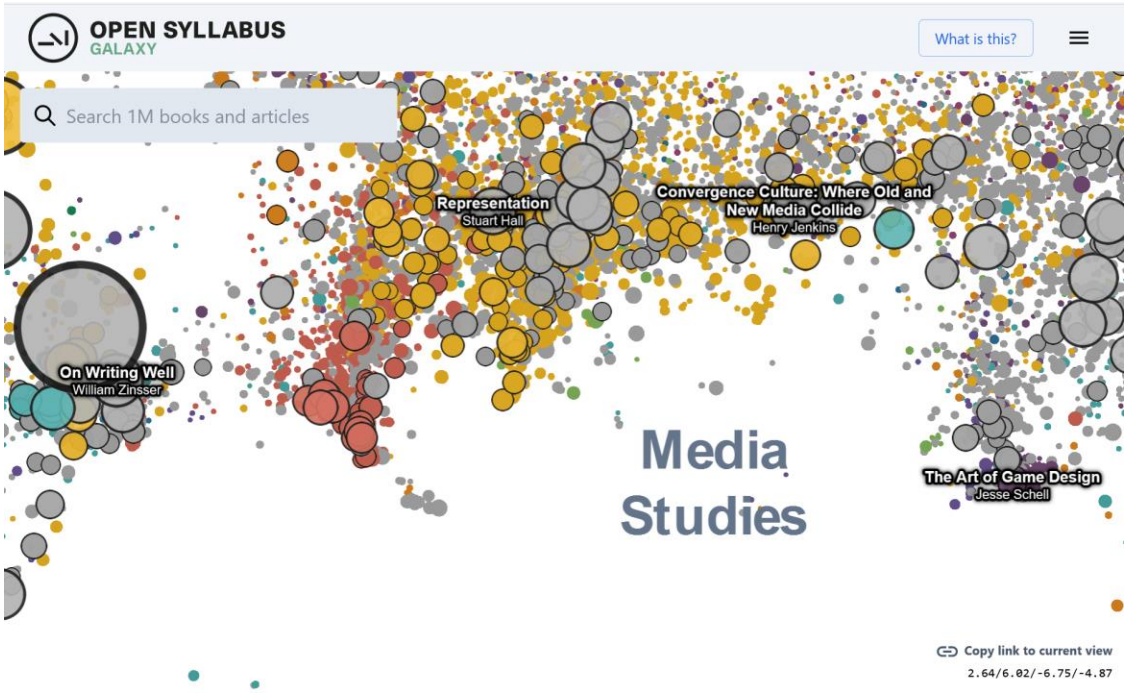


Figure 23: Open Syllabus Galaxy - focus on Media Studies.

On re-using third-party material in your research publication

As the 2019 Universities UK's *Open Access Monographs: Evidence Review* report states,

> Technical issues of inclusion of illustrations in an academic monograph is not the problem; rather, it is acquiring clearance permissions for the re-use of third-party material that adds an extra layer of complexity to publication, potentially making it very expensive to publish books with significant quantities of third-party copyright material (Universities UK, 2019).

The following resources provide help along the often-difficult way through obtaining proper licensing for your third-party material.

- Rudy, K. M. (2019). The true costs of research and publishing. Times Higher Education (THE). https://www.timeshighereducation.com/features/true-costs-research-and-publishing

- Grosvenor, B. (2018, August 20). Why museums should abolish image fees (ctd.). Art History News. https://www.arthistorynews.com/articles/5241_Why_museums_should_abolish_image_fees_(ctd

- University of York. Using images. *Copyright: a Practical Guide*. https://subjectguides.york.ac.uk/copyright/images

- Aufderheide, P., & Jaszi, P. (2015). Code of Best Practices in Fair Use for the Visual Arts. Copyright, Fair Use, Scholarly Communication, Etc. https://digitalcommons.unl.edu/scholcom/1

Versioning and Forking of Books

"Versioning" is the practice of documenting diachronic changes in a publication—a publication is updated until an an agreed-upon amount of edits has been included; this then becomes fixed & time-stamped ("frozen" reference to content and corresponding time) in a new version.

On a conceptual level, Versioning and Forking can be seen as instantiations of the Remix paradigm. While the use of version control can be applied on the level of collaborative text writing,[61] the principle can similarly be applied on the level of an entire book, under the precondition that the book creation process is entirely based on a git-based workflow and its files stored in a version-control amenable repository such as GitLab, GitHub, or gitea.[62] In this context, forking denotes the act of remix realised by a third party that is not identical with the original author. Versioning, on the other hand, is the provision of a time-stamped update under the same general provisions of the original text.

An exciting use case of book forking has been initiated by Winnie Soon & Geoff Cox, who, with their book *Aesthetic Programming* ((Winnie Soon & Cox, 2021)), invited readers to create new versions of said publication. In response to said call, Sarah Ciston and Mark C. Marino created their own fork of the book via the **GitLab repository**, and introduced a new conversational layer—what they label "Code Confessions" and "Code Comments"—to engage with both the original text and their own remix practice (Ciston & Marino, 2021).

Two of the earlier-mentioned platforms—**PubPub** and **Manifold**—have also integrated their own approaches to versioning within their respective publishing workflows. Reflecting on the iterative process of developing a set of versions over time on a variety of platforms that have accumulated into a book manuscript, Adema has written about her experience with versioning :

> "Over the last decade my book *Living Books. Experiments in the Posthumanities*, has developed in an iterative way. From blogposts to papers and conference presentations, and eventually to a thesis, a wiki, a CommentPress version, and several articles, *Living Books*

[61] See git-based collaborative text editing in Mars et al. 2021, and PubPub's in-editor versioning approach described in more detail in Steiner 2020.

[62] It might be noted here that while git is the most popular of version control systems, other forms such as Subversion, RCS, CVS, or Mercurial might also be amenable to setting up a publishing infrastructure (although we don't know of any practical examples that use these ecosystems for the purpose of digital book publishing).

> further evolved into a book published by the MIT Press, in addition to an online PubPub version that can be updated, remixed, and commented upon. [...E]xperimenting with different versions, platforms, and media to communicate my research, served as an opportunity to reflect critically on the way the research and publishing workflow is currently (teleologically and hierarchically) set up, and how it has been fully integrated within certain institutional and commercial settings" (Adema, 2021).

For a more expansive overview, may we refer the inclined reader to the typology developed as part of our *Books Contain Multitudes* report, with particular reference to the segment on Versioned Books in Part 2.

Computational Publishing Tools

Computational publishing is to some extent an emerging area of experimental book publishing. Though there are competing terms in this space, we use computational publishing to refer to producing a book which combines text and computational functionality in a single document. However this simple definition requires some refinement in order to distinguish the contemporary trend from its historical precursors including the Web's hyperlinking and interpreted programming languages.

The idea of using computational technology to enhance the functionality of a document is core to the very idea of the World Wide Web. As early as 1939, Vannevar Bush, an US engineer and administrator on the Manhattan Project, discussed using technology to create links—"associative trails"—between documents stored in computational storage mechanisms (Bush, 1939); (Bush, 1945). Alex Wright discusses how Bush envisioned:

> "breaking down the old hierarchy of the codex book in favour of a new kind of intertextuality that allowed for direct links between documents, removing the mediating filer of an external index... allowing authors (and readers) to insert explicit linkages between documents in a collection... Using associative trails, the user could forge a personal trail through any number of documents, creating an exteriorized representation of an internal thought process that other users could later see." (Wright, 2007)

This idea of 'associative trails' was essentially created with the Web's hypertext: computational elements inserted into (mostly) HTML documents to create links to other files on the Web.

Computational publishing also bears some similarity with Donald E. Knuth's conception of 'literate programming': "a methodology that combines a programming language with a documentation language thereby making programs more robust, more portable, more easily maintained, and arguably more fun to write than programs that are written only in a high-level language." (Knuth, 1992) Fundamentally Knuth conceived of a program as "a piece of literature, addressed to human beings rather than to a computer." (Knuth, 1992)

Knuth's literate programming shares similarities with interpreted programming languages such as PHP, Python, Ruby, and JavaScript where the program is interpreted by the computer without compiling the program into machine instructions (McKenzie, 2021). Interpreted languages are distinguished from compiled languages such as Java, C, C++, and Go where the program script first needs to be manually

compiled to transform it into machine-readable code. Interpreted languages are not only human- and machine-readable but are able to incorporate documentation in the way that Knuth conceives by allowing for comments, i. e. elements of the script which can be read by a human but will not be read by the machine.

We therefore want to distinguish computational book publishing from these existing and ubiquitous forms of combining human-readable text with computational functions. **Computational book publishing refers to incorporating new and more advanced computational elements into traditional human-readable books.** Andrew Odewahn (2017) outlines a few of the computational elements that can be incorporated in computational publications including but not limited to:

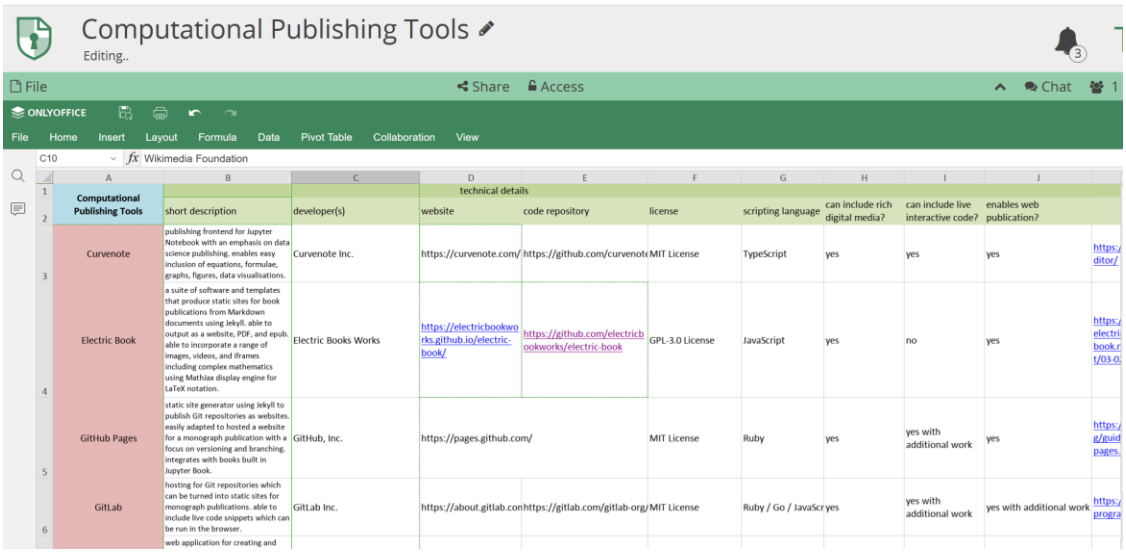
- rich dynamic media that can play in a browser;
- interactive data visualisations;
- executable code blocks;
- data repositories.

Computational book publications enable the reader to run code within the book itself whether to demonstrate a programming example or to dynamically adjust a data visualisation. Since the tools used to enable computational book publishing are linked to those of software publishing, computational book publishing enables the author to write a book as if writing a piece of software using practices traditionally associated with publishing source code such as collaborative writing or versioning with tools like Git or Apache Subversion (cf. Winnie Soon, 2022, and this report's section on Git-based collaboration).

Given the focus in these examples of computation and display of quantitative data, computational book publishing may seem most immediately applicable to publishing in STEM-focused academic disciplines but increasingly computational book publishing tools are being adopted in digital humanities as well as art and design disciplines like architecture.

Overview of available tools

The following linked table displays a list of current computational book publishing tools. The list is limited to software products that are under active maintenance (i.e. updated in the recent past).



Computational Publishing Tools			technical details						
	short description	developer(s)	website	code repository	license	scripting language	can include rich digital media?	can include live interactive code?	enables web publication?
Curvenote	publishing frontend for Jupyter Notebook with an emphasis on data science publishing. enables easy inclusion of equations, formulae, graphs, figures, data visualisations.	Curvenote Inc.	https://curvenote.com/	https://github.com/curvenot	MIT License	TypeScript	yes	yes	yes
Electric Book	a suite of software and templates that produce static sites for book publications from Markdown documents using Jekyll. able to output as a website, PDF, and epub. able to incorporate a range of images, videos, and iframes including complex mathematics using MathJax display engine for LaTeX notation.	Electric Books Works	https://electricbookworks.github.io/electric-book/	https://github.com/electricbookworks/electric-book	GPL-3.0 License	JavaScript	yes	no	yes
GitHub Pages	static site generator using Jekyll to publish Git repositories as websites. easily adapted to hosted a website for a monograph publication with a focus on versioning and branching. integrates with books built in Jupyter Book.	GitHub, Inc.	https://pages.github.com/		MIT License	Ruby	yes	yes with additional work	yes
GitLab	hosting for Git repositories which can be turned into static sites for monograph publications. able to include live code snippets which can be run in the browser.	GitLab Inc.	https://about.gitlab.com	https://gitlab.com/gitlab-org/	MIT License	Ruby / Go / JavaScr	yes	yes with additional work	yes with additional work
	web application for creating and								

Figure 24: Overview of Computational Publishing Tools.
View this spreadsheet at https://tiny.cc/copim-computational-tools .

The list includes both tools for creating individual computational books and tools for publishing books with computational elements. Several of these tools, specifically the publishing tools, are not specially designed for computational book publishing but have been adapted to this use by authors. This includes static site generator tools like GitHub Pages and we'd like to note that there are many static site generator tools available that could also be adapted for publishing computational books however these may require more development skills than other tools highlighted.

Examples of Computational Books

Please find a variety of examples of Computational Books in this report's Part 2: A Typology of Experimental Books.

The ExPub Compendium

To facilitate the kinds of experimental publishing and reuse discussed in this report, COPIM is developing an experimental publishing compendium and toolkit to be made live in Winter 2022/2023. The ExPub Compendium will be an online resource which provides an easy-to-browse catalogue of experimental publishing tools, practices, examples of experimental books, and the relationships between them.

With the Compendium, we aim to help researchers, designers, artists, or publishers who wish to publish experimental books by making it easier for them to discover the software or practices that can enable their experimental project. Currently, experimental book publishing projects tend to follow one of the following ways: either a bespoke solution is developed which can be prohibitively expensive for independent researchers of publishers, or a range of platforms and systems is tried out laboriously to find one that meets the authors' and publisher's requirements. The Compendium will provide a one-stop resource to help authors and publishers make decisions about what tools and platforms they can use for their specific experimental book publishing project.

While this report contains a static overview of tools for and practices to enable experimental book publishing, the ExPub Compendium will be an interactive database. The Compendium will contain an overview of the software and publishing tools discussed in this report alongside: an overview of and resources on experimental publishing practices such as annotation, collaborative writing, computational publishing, and versioning; sensitivities involved in experimental book publishing; a typology of experimental books; and examples of both experimental books and publishers of experimental books. We hope to provide inspiration and guidance for experimental book publications by linking these building blocks demonstrating how they might fit together. While tools feature prominently in the compendium, we are keen to showcase non-technical *ingredients* to raise awareness that tools alone don't make a publication.

The ExPub Compendium draws inspiration from similar online toolkit resources in the open licensing space. For design inspiration, we're grateful to the Next Generation Libraries Project and their SComCat resource, an online and openly available catalogue of open scholarly communication technologies. SComCat, developed in Ruby on Rails and made open-source under an MIT License, provides an easy to search and easy to browse database of scholarly communications tools and platforms for a researcher or institution looking to use open software for scholarly communications. Their tagging and filtering search engine makes it easy to narrow down browsing to select only tools that meet a user's specific requirements. For content, we've looked at OAPEN's Open Access Book Toolkit, an online guide to producing and publishing open access books offering individual articles on every stage of the typical research lifecycle for publishing open access. As described in this report's first section, we also used Maxwell et al.'s *Mind The Gap* report, Lewis' 2020 *Bibliographic Scan of Digital Scholarly Communication Infrastructure*, the Radical Open Access Collective's *Information Portal: OA Publishing Tools*, Kramer and Bosman's overview of *400+ Tools and innovations in scholarly communication*, and Tennant et al.'s *Introducing Massively Open Online Papers (MOOPs)* for inspiration on open tools and practices.

Development of the ExPub Compendium has been a collaborative process involving all members of COPIM's WP6 project team as well as collaborations with COPIM's other work packages. The COPIM project also has toolkits and online resources as deliverables for WP2 (revenue infrastructures and management platform), WP3 (knowledge exchange and alternative business models), and WP7 (digital archiving and preservation). The project structure meant that the various work package teams were able to share ideas and best practices around the development of online resources and toolkits, helping to avoid unnecessary duplication of work.

Conclusion

This research and scoping report will develop further in instalments to incorporate both community feedback from the COPIM partners and other stakeholders (publishers, authors, technology developers) and updates in a rapidly changing technological landscape. We now have updated the examples listed in the experimental books typology section to include more non-English language examples from a wider geographical region.

We would very much like to invite comments and feedback on the release of this updated and expanded version of this report. We hope to be able to add further updates into subsequent versions of this report, while also feeding them into the ExPub Compendium, the online resource that we are now

working to create and publish in COPIM's Year 3. All of this serves as a documentation of the process behind the establishment of this online resource and the thinking and decision-making informing it.

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