Digital History and Immaterial Infrastructure: A Bottom-Up Approach

Sune Bechmann Pedersen[1], Marie Cronqvist[2] and Kajsa Weber[3]

[1] *Stockholm University, Sweden*
[2] *Linköping University, Sweden*
[3] *Lund University, Sweden*

Abstract

This paper argues for an expanded view of research infrastructure. Drawing on our experiences leading the research platform *DigitalHistory@Lund*, it shows how research capacity can be unlocked "bottom-up", by providing scholars with comparatively cheap—yet often inaccessible—technological support. By engaging researchers in digitally enabled scholarly practices, the platform yielded a multiplying effect that has seen participants produce highly competitive grant applications and eventually bring home external funding currently worth eight times the platform's original costs. The platform thus demonstrates the importance of "immaterial" infrastructure in the sense of basic organisational structures that facilitate collaboration and communication.

Keywords

Computational history, digital skills training, research infrastructure, *DigitalHistory@Lund*

1. Introduction

Digital technology is profoundly reshaping all aspects of the historian's craft. Digital tools are affecting the collection, organisation, interpretation, and presentation of sources as well as the communication of historians with colleagues, students, and the broader public. Digital literacy is thus crucial for today's historians [1]–[3]. New media are also reshaping archives and libraries in unpredictable ways. It is certain, though, that the current politics of digitalisation greatly influences future historical research. Critical discussions of cultural heritage and digitisation—in close collaboration with archives and libraries—are thus essential to ensure the accessibility and usability of historical collections [4], [5]. This paper details how the authors tackled these challenges as leaders of the Lund University research platform *DigitalHistory@Lund* (2021–2023). The platform, funded by the Joint Faculties of Humanities and Theology at Lund University, aimed to support research, promote skills, strengthen partnerships, and critically reflect on the implications of digitalisation. The paper demonstrates the strengths of working bottom up with a broad and inclusive definition of digital history. It argues for the importance to historical research of "immaterial infrastructure." By this we refer to people providing researchers with technical support to perform comparatively simple tasks that nevertheless unlock significant potential for the individual research project.

2. Digital history in Sweden

Digital history is a flexible term referring to the nature and organisation of historical sources, the tools of analysis, and the means of presenting results. While new reproduction technologies have a long history of prompting historians to consider technology's implication for the discipline [6], [7], the past decade has seen digital history grow rapidly, sparking renewed discussions about the future of the historical discipline [8]–[10] as well as historiographical enquiries into the origins of computer-assisted historical analysis [11]–[13]. As a proof of the field's consolidation, the first issue of the *Journal of Digital History* (De Gruyter Press/CD2H Luxembourg) appeared in 2021.

In Sweden, however, we found that at the time we prepared our application for the research platform in 2020, the challenges and opportunities of digital history generally remained under-explored by professional historians [14], [15]. Informal talks with senior professors about digital history often brought up memories of past flagship projects involving computational analysis, e.g. "Sverige under andra världskriget" (1966–78), and dismissive attitudes reminiscent of the biting critique Lawrence Stone directed against quantitative computational history in his classic 1979 article "The revival of narrative: reflections on a new old history".

> *It is just those projects that have been the most lavishly funded, the most*
> *ambitious in the assembly of vast quantities of data by armies of paid*
> *researchers, the most scientifically processed by the very latest in computer*
> *technology, the most mathematically sophisticated in presentation, which have*
> *so far turned out to be the most disappointing … On any cost-benefit analysis*
> *the rewards of large-scale computerized history have so far only occasionally*
> *justified the input of time and money [16, pp. 12–13].*

In our mapping of the history curriculum at Swedish universities we found that digital skills training was conspicuously absent, as was research building on digital methods and historiographical literature considering the dilemmas and affordances posed by digital history. While several universities had launched broad Digital Humanities initiatives, concerted efforts centred on the specific issues and challenges pertaining to digital history were scarce.[1] A few large research projects had received five-year funding under the DIGARV funding scheme in 2018 and 2020 (e.g. Terrorism in Swedish Politics; Welfare State Analytics; Swedish Caribbean Colonialism; Mapping Lived Religion)[2], while others had been funded by the Wallenberg foundations (e.g. The Digital Periegesis). Yet these bold projects did not aim to systematically build capacity in digital history in Sweden. Inspired by long-term initiatives by colleagues at universities in Aarhus and Luxembourg, the aim of our proposed platform was thus to grow a sustainable, bottom-up interest in the questions pertaining to digital history among historians who do not self-identify as "digital".[3]

3. DigitalHistory@Lund as immaterial infrastructure

The call for inter-departmental research platform proposals by the Joint Faculties of Humanities and Theology at Lund University was aimed at two types of projects. On the one hand, the Faculties sought to support projects building on existing strong research groups that aimed for large scale funding schemes such as "RJ Programme" and "ERC Advanced Grant". On the other hand, the call invited applications in support of research infrastructure. We applied for the second type of project, though not with a typical, "built network" in mind [17]. Instead, we argued that what was needed to unlock historically oriented research was an immaterial infrastructure. Most historians do not require expensive equipment or expansive technical support beyond what most universities already provide in terms of basic software packages, modest server space, and solid research libraries. Rather, what was needed was an "immaterial infrastructure of human relations" [18, p. 2]. In other words, the opportunity to bounce ideas with computationally skilled colleagues and basic support to start using entry-level software would (currently) satisfy the vast majority of historians. Our application therefore emphasized the need for platform staff whose

---

[1] For instance, Lund University's Humanities Lab; Umeå University's HumLab; University of Gothenburg's Centre for Digital Humanities; Centre for Digital Humanities and Social Sciences Uppsala; and Linnaeus University's Digital Humanities Initiative.
[2] DIGARV was a joint funding scheme of the Swedish Research Council, Riksbankens Jubileumsfond, and the Royal Swedish Academy of Letters, History and Antiquities. https://www.digarv.se/
[3] https://cas.au.dk/en/cedhar and https://www.c2dh.uni.lu/

primary task it would be to support researchers in embracing digital methods to ask new research questions or answer old questions in novel ways.

In today's research landscape, access to computationally skilled human resources is usually predicated on external funding. The large projects outlined above and the digital humanities centres with which they are affiliated all have research engineers and systems developers on their payrolls. However, these members of staff rarely have time to provide more than rudimentary support to researchers with unfunded project ideas. The gambit of our project was that an investment in staff whose sole task it would be to support (currently) unfunded projects with research coordinators and a research engineer would act as a multiplier effect and eventually pay off in terms of external funding secured by the platform-supported projects. Organisationally, the platform application was sponsored by the Section for Media History, Department of Communication and Media, in close collaboration with Lund Centre for the History of Knowledge (LUCK) and Lund University Humanities Lab. The application also involved the Lund University Libraries and other GLAM-partners in Sweden.

After an extensive external review process, DigitalHistory@Lund received funding for two years in September 2020 (later extended through 2023). The Faculty's 3.3 million SEK, combined with the overhead cost covered by the participating departments, allowed for the funding of a full-time research engineer (Mathias Johansson), plus a part-time platform coordinator (Sune Bechmann Pedersen) and deputy coordinator (Kajsa Weber).

4. Building digital history from the bottom up

The other four research platforms funded under the same call were all built on existing research groups under full professors. By contrast, the digital history research platform started virtually from scratch. To engage our colleagues, we embraced a broad definition of digital history and sought to reach researchers whose projects had a historical dimension, disregarding their departmental affiliation.

The declared ambition of the platform was to integrate existing digital history projects and support the design and execution of new projects. At the same time, the platform strove to build local digital history capacity through skills training workshops, research seminars, research engineer support, and by developing new BA and MA courses in digital history.

The defined aims of the platform were:
- To support the invention, design, and execution of digital history research projects
- To promote digital history skills in research, teaching, and dissemination
- To strengthen partnerships with digital history stakeholders outside academia
- To critically examine the implications of digital history on historical work

In practice, we pursued these aims by offering tool training seminars introducing methods and software such as *Transkribus* (HTR tool), *Tropy* (tool for managing photos of archival sources), *Voyant* (GUI text mining tool) and topic modelling. The aim was to provide a collegial space for overcoming learning thresholds and getting familiarised with relevant tools. It was important for us to highlight that we required no previous skills or experience to take part in our training seminars. The idea is, as many of these analytical tools are foreign to the historian's mythological tool box, that it is only possible to win over historians by convincing them of the practical utility of an expanded digital tool box. Digital history must communicate accessibility and practical relevance. We also aided researchers with concrete tasks, collecting, cleaning, and analysing data, for instance by setting up web scraping, structuring large data with RegEx, or geocoding with QGIS. Doctoral students, often early in their programme, proved particularly receptive and interested in integrating digital tools in their research.

In addition to the workshops, we organised a regular research seminar series inviting domestic and international speakers from the field of digital history, broadly defined. In total, the platform organised 27 seminars and workshops between 2021 and 2023 attended by more than 120 different individuals, many of whom attended more than one event. We also organised a local "inspirational conference" for work in progress presentations and hosted several conferences including the 5th Digital History in Sweden conference in November 2022.[4]

5. Third stream collaborations

The platform also engaged in projects and initiatives to digitise historical sources. These efforts were mostly directed towards the project *Digitized Swedish Print* (Digitaliserat svenskt tryck)— a collaboration between the five largest research libraries in Sweden (Gothenburg, Lund, Stockholm, Umeå and Uppsala), the National Library, and the Swedish Academy launched in 2020. The digitisation of library and archival holdings is a critical infrastructure and a necessary condition for future Swedish digital history projects. The platform thus engaged in various initiatives to ensure knowledge exchange between researchers and librarians on how to build these large research infrastructures. Among these, the platform helped organise the conference "Swedish Retrospecitve National Bibliography (SRNB), 1483–1599" at the National Library September 27–28 2022.

6. Results and conclusions

In conclusion, we posit that the DigitalHistory@Lund platform during its initial period of operation 2021–2023 formed a *distinct, productive, and valuable complement to existing large-scale research infrastructures* at Lund University. The platform shows how digital history can work in practice, overcome learning thresholds and engage researchers in the use of digital research practices. We built up an infrastructure that was largely *immaterial and bottom-up*, demonstrating that vital research infrastructures are not limited to large systems or physical networks of equipment and material capabilities. Alluding to the distinction between "hard" and "soft" infrastructures, the concept of infrastructure could in our context also be used to highlight *organisational or institutional structures* that *facilitate social collaboration, learning, information dissemination, and communication*. In fact, we hold, vital infrastructures in the humanities and social sciences are as much about exploratory workshops and seminar discussions as libraries, servers, and archives. In DigitalHistory@Lund, through seminars, workshops, conferences and course development, we created a range of common arenas that have proven to bear fruit in the form of new research collaborations and ideas. Moreover, our work has contributed to the securing of substantial external research funding. At the time of writing, the platform has actively supported successful applications in excess of 24.4 million SEK.

A cornerstone of our engagement in DigitalHistory@Lund has been to form a platform guided by *generosity and openness* [10]. The platform has welcomed all researchers at the HT faculties and invited them to take advantage of its resources and competencies. However, there are scientific and methodological issues that are specifically important for the historical sciences but have not been targeted by the much broader field of digital humanities. These issues have been seized and articulated by the DigitalHistory@Lund platform.

In the autumn of 2023, DigitalHistory@Lund entered its second organisational phase. Sune Bechmann Pedersen and Marie Cronqvist have left Lund University for positions at other universities, but Kajsa Weber remains in place to ensure the sustainability of the initiative as the

---

[4] For a full list of past events, see the platform's website https://projekt.ht.lu.se/digitalhistory.

platform's main coordination. Exchange continues with Bechmann Pedersen's and Cronqvist's new departments in Stockholm and Linköping as well as other universities in southern Sweden through common seminar series as well as workshops and third-stream joint collaborations.[5] There are thus excellent conditions for DigitalHistory@Lund to not only survive but thrive in the future. As initiators and coordinators of the platform we are very proud that the HT faculties' investment in this platform turned out so well. At the same time, we are convinced that the greatest footprint of this type of investment—mainly in the form of granting even larger research grants and researchers increasingly and naturally incorporating digital history methods into their scientific toolbox—will only become visible in the longer term.

Acknowledgements

References

[1] L. Putnam, 'The Transnational and the Text-Searchable: Digitized Sources and the Shadows They Cast', *Am. Hist. Rev.*, vol. 121, no. 2, pp. 377–402, 2016.

[2] H. Salmi, *What is Digital History?* Cambridge: Polity Press, 2020.

[3] I. Milligan, *The Transformation of Historical Research in the Digital Age*. Cambridge: Cambridge University Press, 2022. Accessed: Feb. 08, 2023. [Online]. Available: https://www.cambridge.org/core/elements/transformation-of-historical-research-in-the-digital-age/30DFBEAA3B753370946B7A98045CFEF4

[4] J. Jarlbrink and P. Snickars, 'Cultural Heritage as Digital Noise: Nineteenth Century Newspapers in the Digital Archive', *J. Doc.*, vol. 73, no. 6, pp. 1228–1243, 2017.

[5] H. S. Jensen, 'Digital Archival Literacy for (All) Historians', *Media Hist.*, vol. 27, no. 2, pp. 251–265, Apr. 2021, doi: 10.1080/13688804.2020.1779047.

[6] C. G. Andræ, 'Clio inför automationen', *Hist. Tidskr.*, vol. 86, no. 1, pp. 47–79, 1966.

[7] E. L. R. Ladurie, 'La fin des érudits', *Nouvel Observateur*, May 08, 1968.

[8] A. Fickers, 'Towards a New Digital Historicism? Doing History in the Age of Abundance', *VIEW J. Eur. Telev. Hist. Cult.*, vol. 1, no. 1, pp. 19–26, 2012.

[9] M. Fridlund, 'Digital History 1.5: A Middle Way between Normal and Paradigmatic Digital Historical Research', in *Digital Histories: Emergent Approaches within the New Digital History*, M. Fridlund, M. Oiva, and P. Paju, Eds., Helsinki University Press, 2020, pp. 69–87. doi: 10.33134/HUP-5.

[10] R. Ahnert, E. Griffin, M. Ridge, and G. Tolfo, *Collaborative Historical Research in the Age of Big Data: Lessons from an Interdisciplinary Project*, 1st ed. Cambridge University Press, 2023. doi: 10.1017/9781009175548.

[11] D. Greenstein, 'Bringing bacon home: The divergent progress of computer-aided historical research in Europe and the United States', *Comput. Humanit.*, vol. 30, no. 5, pp. 351–364, Sep. 1996, doi: 10.1007/BF00054018.

[12] G. Zaagsma, 'On Digital History', *BMGN-Low Ctries. Hist. Rev.*, vol. 128, no. 4, pp. 3–29, 2013.

[13] J. Jarlbrink, 'Historievetenskapens mediehantering', in *Massmedieproblem: mediestudiets formering*, Mats Hyvönen, Pelle Snickars, and Per Vesterlund, Eds., Lunds universitet, 2015, pp. 225–247.

[14] J. P. Essen and K. Nyberg, *Historia i en digital värld*. 2014. [Online]. Available: https://digihist.files.wordpress.com/2014/05/hdv_v1_0_1.pdf

---

[5] For instance, through the Digital History Seminar hosted by the Department of History at Stockholm University in collaboration with Lund University and Linnaeus University. https://www.su.se/department-of-history/research/conferences-and-seminars/digital-history-seminar-1.640988.

[15] T. Karlsson, 'Let's Make the "Digital Turn" a "Narrative Turn"! On the Gap between Two History Disciplines and How to Bridge It', Scandia. [Online]. Available: https://journals.lub.lu.se/scandia/announcement/view/66

[16] L. Stone, 'The Revival of Narrative: Reflections on a New Old History', *Past Present*, no. 85, pp. 3–24, 1979.

[17] B. Larkin, 'The Politics and Poetics of Infrastructure', *Annu. Rev. Anthropol.*, vol. 42, no. 1, pp. 327–343, 2013, doi: 10.1146/annurev-anthro-092412-155522.

[18] L. Kanoi, V. Koh, A. Lim, S. Yamada, and M. R. Dove, '"What is infrastructure? What does it do?": Anthropological perspectives on the workings of infrastructure(s)', *Environ. Res. Infrastruct. Sustain.*, vol. 2, no. 1, p. 012002, Feb. 2022, doi: 10.1088/2634-4505/ac4429.